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TECHNICAL REPORT NO. 76-12

OPERATION OF ALASKAN LONG-PERIOD ARRAY
FINAL REPORT, PROJECT VT/6707
CONTRACT F08606-76-C-0006
1 July 1975 through 30 September 1976

by

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

The ALPA was operated 24 hours per day, 7 days per week from 1 July 1975 to 24 May 1976. During this time, the remote site fuel system desigh was reviewed for weaknesses that allowed development of fuel leaks, and a new improved design was developed. The AEE temperature control doors were replaced with new units that were designed and built to operate freely even though the AEE was warped severely by ground heaving. A full frequency calibration was conducted. Amplifier filter reliability was improved by replacing

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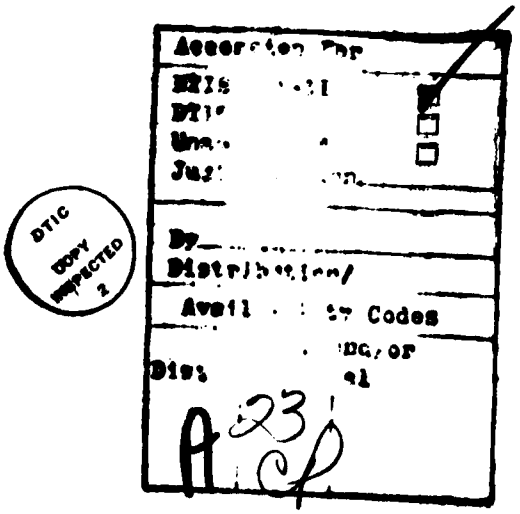
20. ABSTRACT (Continued)

the quartz crystal used in the unit with one that did not fail when subjected to mechanical shocks like those received during commercial shipment. The old, vacuum-tube Develocorder oscilloscopes, which had deteriorated during many years of service, were replaced with new, simpler, solid-state oscilloscopes. Two types of propane fuel regulators were tested.

Routine operation of the ALPA was terminated on 24 May 1976, when rollup work interrupted the operation of the telemetry links. Thereafter all work was directed to the complete rollup of remote sites 201, 205, 206, 301, 302, 304, 305, 306, 312, 316, 345, and 356, to the partial rollup of remote sites 101, 202, 203, 204, 303, 323, and 334. All work was completed on 30 September 1976.



IDENTIFICATION

AFTAC Project No.	VT/6707
Title of Work:	Operate ALPA
Contractor:	Teledyne Industries, Geotech Division
Contract No.	F08606-76-C-0006
Time Period Covered by this Report:	1 July 1975 through 30 September 1976
Date of Contract:	1 July 1975
Program Manager:	M. G. Gudzin, (214) 271-2561, Ext 252

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OPERATION OF THE ALASKAN LONG-PERIOD ARRAY
FINAL REPORT, PROJECT VT/6707
1 July 1975 through 30 September 1976

1. INTRODUCTION

1.1 AUTHORITY

Contract FO8606-76-C-0006 authorized Teledyne Geotech to operate the Alaskan Long-Period Array from 1 July 1975 through 30 September 1976. The Statement of Work to be Done for this contract is reproduced in appendix 1.

Amendment 2 to AFTAC Project Authorization No. VELA T/6707 and a request for a proposal to accomplish the changes set forth in the amendment were received on 3 March 1976. The amendment requested that (a) the ALPA data acquisition system operation stop on 1 June 1976, (b) equipment inventory lists be prepared, (c) the ALPA system be dismantled and removed except as required for seven sites that are to be reconfigured, (d) the land be restored at the 12 sites not to be reconfigured, and (e) assistance be provided to the reconfiguration effort to be done under AFTAC Project T/4107. A reproduction of this amendment is included in appendix 1.

Authorization to proceed with work requested by Amendment 2 was received by TWX (Message No. 3032) on 12 March 1976, and was confirmed by Amendment No. 3 on 29 March 1976.

Message No. 4059 was received from Mr. Joseph W. Gibbons, Contracting Officer, on 21 April 1976. This authorized work on Task 8.3, Amendment No. 2, to continue from 17 April through 15 May 1976, and allowed contract cost/fee adjustment not to exceed $20,000 for this work.

Our Proposal P-2558 to accomplish the work requested in Amendment No. 2 was submitted on 28 April 1976. This proposal was revised and resubmitted as Proposal P1-2558 on 18 May.

Contract FO8606-76-C-0006 was renegotiated on 21 June 1976 to provide funds for the work called for in Amendment No. 2 to Project Authorization No. VELA T/6707.

Amendment A00001 to the subject contract was received on 13 September. This amendment confirmed that the ALPA project will cease on 30 September 1976, and transferred a selected group of major equipment GFP items and a selected group of minor equipment GFP items from the subject contract to Contract FO8606-74-C-0045.

1.2 HISTORY

The ALPA was designed, fabricated, and installed; and 17 sites were made operational by work performed between 15 August 1968 and 31 October 1970 under Project VELA T/8707, Contract F33657-69-C-0273. The other two sites were made operational during November 1970; and the ALPA was routinely operated and maintained under Project VELA T/1707, Contract F33657-71-C-0036, from 1 November 1970 through 31 July 1972. Other work was done during this time period to reduce noise caused by borehole convections, to improve system performance and reliability by replacing or modifying analog and digital circuit assemblies, and to reduce the introduction of contaminants into the fuel systems. From 1 August 1972 to 31 July 1973, the ALPA was operated and maintained under Project VELA T/3707, Contract F08606-73-C-0004. During this period, modifications and improvements were made to thermoelectric generator (TEG) exhaust stacks, the remote fuel systems, and the system software. An evaluation of seismometer strain decouplers was performed. The work accomplished under these projects is described in Teledyne Geotech Technical Reports No. 70-39, 72-9, and 73-13. From 1 July through 30 June 1975, the ALPA was operated and maintained under Project VT/4707, Contract F08606-74-C-0012. During the first period of this contract, from 1 August 1973 through 30 June 1974, filter-amplifier assemblies and preamplifiers were modified to reduce their noise levels; and fuel-level monitoring systems were installed at 17 sites. Data from the ALPA were evaluated to determine site noise levels and array effectiveness. Results of this work are documented in Technical Report No. 74-14. During the second period of this contract, from 1 July 1974 through 30 June 1975 the remote site gas withdrawal fuel supply systems operated without failure and were considered to be proven, operational systems. A new regulator was tested and found unsatisfactory for use at the remote site. A fuel-level measuring system was installed and made operational at 17 remote sites. The system sensed and transmitted fuel level information to the monitor and maintenance center. ALPA documentation was updated to reflect changes in equipment design and operating procedures. Results of this work are documented in Technical Report 75-7.

1.3 DESCRIPTION

The ALPA was a medium aperture array of 3-component, long-period seismographs located just north of Fairbanks, Alaska. The array elements, spaced approximately 20 kilometers apart, were arranged in a filled hexagonal pattern as shown in figure 1. A symmetrical, 3-component, Triaxial Seismometer, Model 31300, was installed approximately 55 feet deep in a borehole at each site but one. The seismometer at Site 3-4 was installed 165 feet deep. Data sensed by the seismometers were partially conditioned and digitized by equipment housed in a building near the top of the borehole. Four radio telemetry loops furnished data communications between the remote (sensor) sites and the Monitor and Maintenance Center (MMC) where overall site operation was controlled. This control included the interrogation of sites for data samples and supervisory information, and the initiation of calibration and other control commands.

Data samples received at the MMC were additionally conditioned, recorded, reformatted, and transmitted via telephone circuits to the Seismic Data Analysis Center (SDAC) in Alexandria, Virginia. The MMC recorder furnished a backup system to store data in the event the telephone circuits to the SDAC failed. Each remote site was powered by a propane-fueled TEG; the MMC received 230/115 V, 60 Hz power from the White Alice communications installation on Pedro Dome, Alaska.

The acquisition of seismic data at site 312 was discontinued in July 1973, because the site noise level was unacceptably high. The signal conditioning equipment was removed from the AEE but the radio telemetry equipment there, an essential link in loop 3, was maintained in an operational condition until ALPA operations were terminated on 24 May 1976.

1.4 GENERAL

The work accomplished under Project VT/6707 included the routine operation and maintenance of the ALPA, evaluation and improvement of the data acquisition system, and special operational tests directed by the Project Office. Assistance was provided to AFTAC Project T/4107 in the reconfiguration of the ALPA/DET 460 reconfiguration. Sites not used in the reconfigured array were completely rolled up. These tasks, including a discussion of system and equipment reliability, are described in this report.

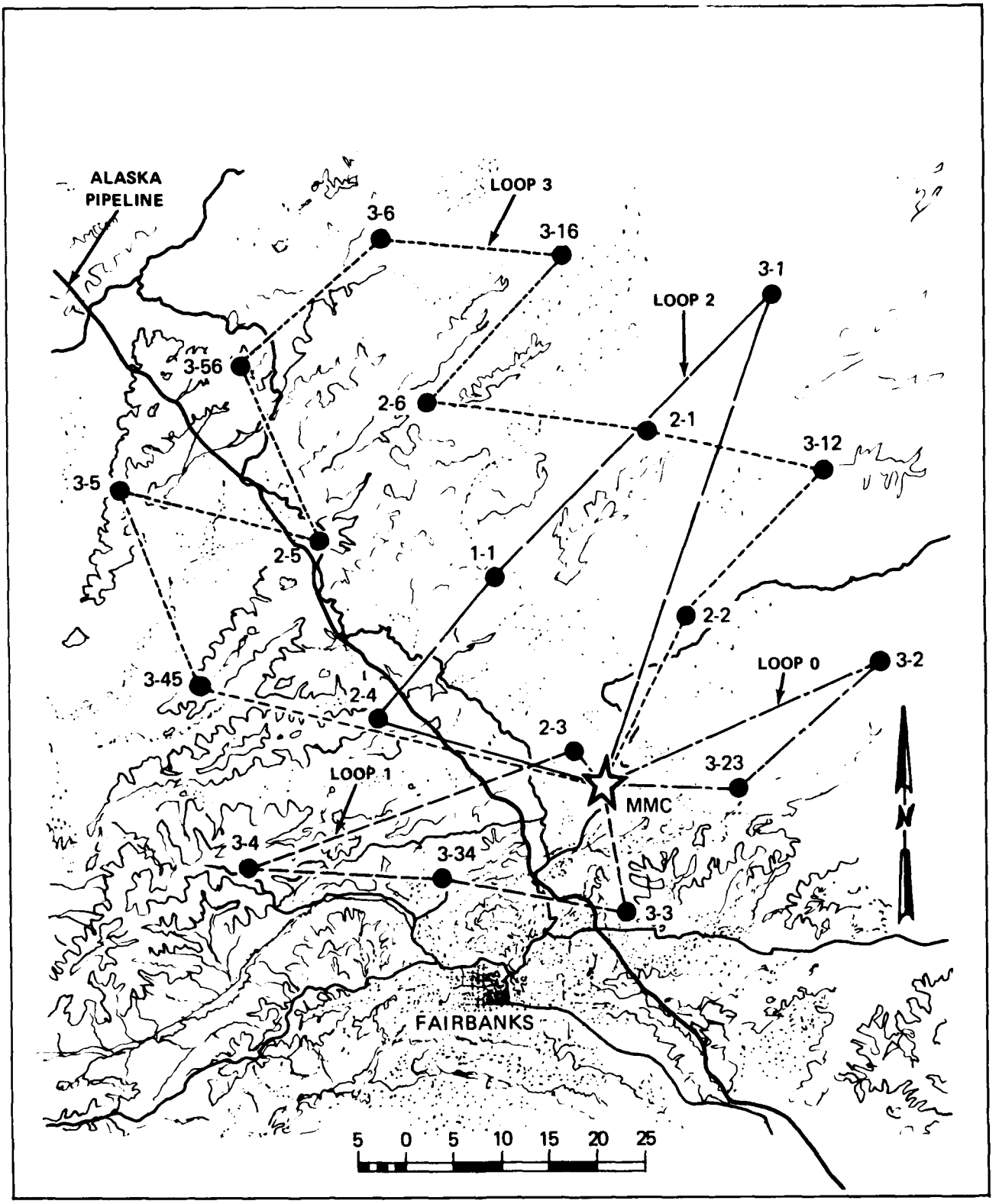

Figure 1. Topographic map of the 19-site Alaskan Long-Period Array G 6328A

2. ROUTINE OPERATION

The ALPA was operated routinely from 1 July 1975 to 24 May 1976 on a 24-hour-a-day, 7-day-a-week basis. Long-period data were acquired, digitized, and transmitted in real-time via telephone circuits to the SDAC facility in Alexandria, Virginia. Backup data recordings were made on digital magnetic tape recorders and data monitor recordings were made on film recorders (Develocorders) at the Monitor and Maintenance Center (MMC) at Pedro Dome, Alaska. The backup tapes were kept approximately 50 days, then recycled. The film records were sent to the Program Manager in Garland for review, then sent to the SDAC for storage. A station log containing all transactions affecting routine data processing was maintained.

Special calibrations of the equipment and corrections to transducer free-periods and mass positions were initiated through and controlled by the system computer as required. Daily calibrations were performed automatically by the computer.

The routine operation of the ALPA was performed by a three-man team which used the MMC as a base of operations. The MMC was normally manned 8 hours per day, 5 days per week, and was visited each Sunday to change magnetic tape and to monitor array operation. Supervision and support were provided in the Garland, Texas, laboratory of Teledyne Geotech by the ALPA program manager, a technician and other members of the Geotech laboratory staff.

The yearly refueling of the 19 remote sites was accomplished during the first two weeks of July 1975. Propane was carried to 18 sites in a 500-gallon tank on board a U. S. Air Force HH3 helicopter. The aircraft and its flight crew were furnished by the 5040th Helicopter Squadron, Elmendorf Air Force Base, Alaska.

Propane was carried to site 304 in a tank on a flat bed trailer, hauled to the site by truck.

At the beginning of run 001-76, the ALPA timing system was reset to keep it in agreement with the Universal Coordinated Time (UCT), broadcast by WWV and WWVH. These stations added a leap second to their time signal outputs at 0000Z, on 1 January 1976.

The ALPA supported the U. S. Air Force winter exercises called Operation Jack Frost from 12 January through 26 January 1976. During this time, a portion of the MMC was made available each night to serve as sleeping quarters for six enlisted men.

3. MAINTENANCE

3.1 GENERAL

The ALPA systems and subsystems were maintained operational through the preventive maintenance of operative equipment and the repair of inoperative equipment. Preventive maintenance performed at the remote sites followed the steps prescribed in the Preventive Maintenance Routine No. 3-1. Preventive maintenance performed at the MMC followed the schedule set forth in Installation, Operation and Maintenance Manual, Alaskan Long-Period Array, Model 33000.

Inoperative field site equipment was repaired, when possible, at the site. Transportation to the sites for all purposes, except the annual refueling, was provided by commercial helicopter. A complete set of major components or subassemblies that might be needed was taken aboard the helicopter whenever a field site was visited for maintenance. A 25-gallon cylinder of propane was also taken whenever the monitor circits indicated that the site fuel supply might be low or exhausted. Systems or subsystems not repairable on-site were replaced with spare units. The inoperative units were returned to the MMC for repair and adjustment. Some units, which required specialized maintenance facilities, were sent to the Teledyne Geotech laboratory at Garland, Texas, or to other commercial service organizations for repair. Inoperative MMC equipment was repaired in similar fashion.

All ALPA test equipment was sent to our Garland laboratory for calibration at least once each year. All repairs needed to bring their performance into specification were performed at that time.

Information about all maintenance work was recorded in a Maintenance Log which is reproduced in table 1. The following failure classification system was used in the log:

Class No.

1 Class 1 failures are those that cause loss of data or control functions that have a major effect on system performance, i.e., over 50 percent loss of system effectiveness. Examples are loss of control facility power or loss of remote site communications.

2 Class 2 failures are those that reduce system effectiveness by less than 50 percent, but more than 10 percent. Examples are loss of power to an independent remote site, partial loss of computer on-line functions, and loss of communications with one remote site.

Class No.

3 Class 3 failures are those that reduce system effectiveness by 10 percent or less, i.e., nuisance failures. Examples are loss of one or more computer off-line functions, loss of remote site housekeeping monitors, and minor data transmission errors.

4 Class 4 failures are those that are found in any equipment which is not in service when the failure occurred. Examples are equipment found to be faulty during installation or preinstallation checkout and faulty spare modules.

Information about the work performed during each remote site visit was recorded on a Remote Site Visit Log. This information is reproduced in table 2 and summarized in table 3. Additional information concerning major maintenance work undertaken during this report period is presented in the following paragraphs.

Table 1. Equipment maintenance log

Date	Equip. identification			Site or	Failure description		
	Name	Model	S/N	MMC	Desig	Class	Comments
07/01/75	TEG	515	028			4	Thermopile was defective, replaced with new unit.
07/22/75	Test Set	TC-290	002		P-2	4	Repaired loose pin connection, had intermittent open.
07/29/75	Teletypewriter	ASR-35	10-1	MMC		3	Line feed spur gear No. 194868 worn out and unit will not operate.
08/04/75	Develocorder	4000A	151	MMC		3	Replaced defective drive roller, P/N 13364.
08/04/75	ADC	TC-201	17	323	Z-12	3	Replaced defective gate Z-12, P/N 507BN.
08/05/75	BGA	TC-214	14	201	Z-14	3	Replaced defective operational amplifier, P/N 101102.

Table 1, Continued

Date	Equip. identification Name	Model	S/N	Site or MMC	Failure description Desig	Class	Comments
08/06/75	WWV Receiver	WVTRA	1303	MMC	PL-2	4	Replaced defective surge protection device.
08/11/75	Develocorder	4000A	151	MMC		3	Replaced drive roller, P/N 13364
08/11/75	Develocorder	4000A	151	MMC		3	Replaced follower, P/N 4084
09/12/75	Battery Box	31428	14	303		3	Replaced battery pack.
09/19/75	BGA	TC-214	20	203		3	Replaced diode (1N969B).
09/24/75	TEG	515	ID53	203		3	Replaced thermo-pile.
09/29/75	BGA	TC-214	12		CR-2	4	Replaced diode (1N969B) CR-2 of W9.
10/06/75	BGA	TC-214	12		Z-13	4	Replaced defective amplifier, P/N 101102
10/08/75	Tape Transport	TM7291	931	MMC		3	Defective loop sense assembly, P/N 3108446-10
11/05/75	DT/TX	TC-207	06			4	Replaced defective gate 7K (535BJ).
11/05/75	TEG	515	ID 45	203		3	Replaced defective thermopile.
12/22/75	TEG	515	ID 34	305		3	Low power output, defective thermo-pile.
2/26/76	TEG	515	33	202		3	Replaced defective thermopile unit.
03/11/76	Tape Controller	TC-215	002	MMC	Z24A	3	Replaced defective IC chip 539CJ.

Table 1, Continued

Date	Equip. identification Name	Model	S/N	Site or MMC	Failure description Desig	Class	Comments
03/12/76	Tape Transport	TM 7291	931	MMC	3Q1	3	Replaced defective transistor on IBT board. Ampex P/N 3212092-10.
03/25/76	Tape Controller	TC-215	002	MMC	Z23R	3	Replaced defective IC P/N 535CJ.
04/02/76	Tape Transport	TM7291	932	MMC			Replaced defective loop sense assembly Ampex P/N 3108446-10.
04/13/76	Data Transfer Transmitter	TC207	6	MMC	8C	2	Replaced defective IC Chip, high error rate on loop.
04/13/76	Data Transfer Transmitter	TC207	6	MMC	5L		Replaced defective IC, 535CJ.

Table 2. Remote site visit log

Date	Site	Work performed
07/03/75	304	Visited site for annual refueling. Repaired leaky shutoff valve in bottom of tank and filled underground storage tank with 450 gallons fuel.
07/07/75	301	Visited site for annual refueling. Filled storage tank with 440 gallons fuel.
07/07/75	323	Visited site for annual refueling. Filled storage tank with 331 gallons fuel.
07/08/75	202	Visited site for annual refueling. Found leak at seal for liquid level indicator. Repaired leak and filled storage tank with 445 gallons of fuel.
07/08/75	306	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 423 gallons of fuel.
07/09/75	101	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 320 gallons fuel.

Table 2, Continued

Date	Site	Work performed
07/09/75	203	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 424 gallons fuel.
07/09/75	303	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 378 gallons fuel.
07/09/75	316	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 404 gallons of fuel.
07/09/75	356	Visited site for annual refueling. No leaks found. Filled storage tank with 390 gallons of fuel.
07/10/75	201	Visited site for annual refueling. No leaks found. Filled storage tank with 422 gallons of fuel.
07/10/75	206	Visited site for annual refueling. No leaks found. Filled storage tank with 368 gallons of fuel.
07/10/75	302	Visited site for annual refueling. Found leak at input to regulator. Repaired leak and filled storage tank with 404 gallons of fuel. Also found broken frame on heater door.
07/10/75	312	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 369 gallons of fuel.
07/10/75	334	Visited site for annual refueling. Found leak at input to regulator. Repaired leak and filled storage tank with 369 gallons of fuel. Also discovered emergency phone system headset and hand mike had been stolen from building.
07/11/75	204	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 374 gallons of fuel.
07/11/75	205	Visited site for annual refueling. Found small leak at input to regulator. Repaired leak and filled storage tank with 320 gallons of fuel.
07/11/75	305	Visited site for annual refueling. Found leak at input to regulator. Repaired all leaks and filled storage tank with 405 gallons of fuel.
07/11/75	345	Visited site for annual refueling. Found leaks in liquid converter. Repaired all leaks and filled storage tank with 405 gallons of fuel.

Table 2, Continued

Date	Site	Work performed
08/04/75	201	Site inoperative. TC-200 basket and all modules were removed and replaced with complete new digital remote system. Also exchanged power conditioning unit. Removed filter amplifier S/N 01 and installed S/N 18.
08/04/75	205	No DCF response TR-1. Replaced control interface relay card A-6. Removed control points modules S/N 06 and S/N 39 and installed S/N 24 and S/N 42.
08/04/75	303	Visited site to perform modification per HM2011. Repaired leak in fuel system at input to regulator and in pipe reducer. Compression nut had broken on input line, causing large leak. Fuel tank still 85 percent full. Removed control interface and took to MMC to install modification HM2011 (fuel tank level monitor system). Installed substitute control interface.
08/04/75	305	Visited site to correct intermittent noise. Removed filter amplifier, S/N 15, and installed S/N 03.
08/04/75	323	Visited site to correct digital trouble. ADC was defective. Removed S/N 17 and installed S/N 10.
08/21/75	303	Visited site to correct lack of DCF on 303-2 and 3. Replaced control interface with original unit after modification HM2011 was completed. Battery bank voltage only 13.5 V but had no spare to replace it.
09/10/75	303	Visited site to adjust seismometer free period. Removed battery bank, S/N 14, and replaced with new unit, S/N 10. Filter amplifier should be sent in for modification but did not have a spare at MMC since all are in Garland for repair. Checked for fuel leaks and found none. Cleaned up trash around site.
09/16/75	202	Visited site to install seismometer free period adjust relay cards. Checked for fuel leaks and found none.
09/16/75	204	Visited site to install seismometer free period adjust relay cards. Checked for fuel leaks and found none.
09/16/75	205	Visited site to install seismometer free period adjust relay cards. Checked for fuel leaks and found none.
09/16/75	206	Visited site to install seismometer free period adjust relay cards. Checked for fuel leaks and found none.

Table 2, Continued

Date	Site	Work performed
09/16/75	304	Visited site to install seismometer free period adjust relay cards. Removed Filter Amplifier, S/N 20 and installed S/N 01. Checked for fuel leaks and found none.
09/16/75	345	Visited site to install seismometer free period adjust relay cards. Checked for fuel leaks and found none.
09/16/75	356	Visited site to check free period adjust circuit. Seismometer free period cannot be adjusted. Checks made indicated filter amplifier is probable cause of trouble. Did not have spare unit available. Checked for fuel leaks and found none.
09/17/75	203	Visited site to repair digital problem causing clipping at low level signals. Replaced BGA No. 20 with No. 21. Fuel system gauge was stuck on 80 percent. Tapped gauge now reads 75 percent. No leaks were found in fuel system. Temperature chamber vent door frame for hot air broken - adjusted manually. Cleaned grounds and swept buildings.
09/17/75	204	Visited site to adjust free periods on channel 1 and removed card. Fuel level gauge was stuck at 85 percent. Tapped gauge now reads about 70 percent. No leaks found in the fuel system. Thermoelectric generator displays intermittent low power, adjusted. Temperature chamber vent doors were all right. Cleaned grounds, swept building, and cut brush.
09/17/75	323	Visited site to install free period adjust relays in channel 2 (A-13, A-16). Fuel system quantity read 60-65 percent. No leaks were found. Temperature chamber vent doors were functioning satisfactorily. Cleaned grounds and swept building.
09/22/75	101	Visited site to correct low TEG power output. Removed TEG, ID 39, and installed ID 28. Removed filter amplifier, S/N 04, and installed S/N 15. Checked for fuel leaks and found none.
09/22/75	204	Visited site to correct digital trouble (no data word from site). Reseated ADC. Checked for fuel leaks and found none.

Table 2, Continued

Date	Site	Work performed
09/22/75	323	Visited site to adjust seismometer free periods. Checked for fuel leaks and found none.
09/24/75	101	Visited site to perform maintenance. Checked for fuel leaks and found none. Replaced hot vent door. Opened air gaps in lightning protection blocks.
09/24/75	202	Visited site to perform maintenance. Checked fuel system for leaks and found none. Removed FPV relay cards. Installed new hot vent door. Installed new door lock set.
09/24/75	203	Visited site to determine low TEG power. Removed TEG No. 53 and installed No. 45. Checked for fuel leaks and found none. Replaced hot vent door.
09/24/75	323	Visited site because mass position adjust circuit was inoperative. MPM malfunction traced to PCU. Will have to be replaced. Removed FPV relay cards. Replaced hot vent door. Checked for fuel leaks and found none.
09/24/75	334	Visited site to perform maintenance. Checked for fuel leaks and found none. Installed padlock on door.
09/30/75	203	Visited site to correct low power and repair exhaust stacks. Removed TEG No. 45 and installed No. 39. Checked for fuel leaks and found none. Installed two new exhaust stacks. Installed padlock.
09/30/75	302	Visited site to perform fall cleanup. Installed new hot vent door. Removed trash and cleaned building.
09/30/75	323	Visited site to correct malfunction of 60 Hz inverter circuit. Problem was corrosion on common contact of battery. Fuel level is 70 percent. Installed FPV relay cards for TR-2. Installed lock on door.
10/03/75	205	Visited site to adjust free period on module 3. Checked for fuel leaks and found none. Replaced hot vent door with new one. Swept building and cleaned grounds.
10/03/75	206	Stopped at site to pick up seismometer covers and check power.
10/03/75	306	Visited site to correct digital problem. Replaced ADC, S/N 001, with S/N 017. Replaced hot vent door with new one. Swept building and cleaned grounds. Checked for fuel leaks and found none.

Table 2, Continued

Date	Site	Work performed
10/03/75	356	Replaced filter amplifier, S/N 06 with S/N 14 (replacement unit did not work - reinstalled old unit). Replaced hot vent door with new one. Checked for fuel leaks and found none. Swept building and cleaned grounds.
10/09/75	201	Visited site to replace vent door. Checked for fuel leaks and found none. Tightened loose guy wires on tower.
10/09/75	206	Visited site to replace vent door. Cleaned building and grounds.
10/09/75	305	Replaced hot vent door with new model. Checked for fuel leaks and found none. Cleaned building and grounds.
10/09/75	316	Reworked fuel system. Replaced hot air door. Repaired exhaust stack, replaced broken vent stacks on top of building. Cleaned building and grounds.
11/07/75	304	Visited site to determine low TEG power. Found fuel pressure very low due to ice in line from tank.
11/07/75	306	Visited site to determine low power. Exhaust stack was completely closed by ice. Removed stack. Made slight adjustment to temperature chamber vent doors to allow complete closure.
11/07/75	356	Inspected site. Found no leaks in fuel system. Removed ice from exhaust stack.
11/19/75	202	Channel 3 inoperative. Replaced battery bank S/N 9 (ID 93) with S/N 14 (ID 98). Checked fuel system. Found no leaks. Tank contains 60 percent fuel.
11/19/75	204	No data word at site. Replaced TC-200 basket with S/N 20, ID 376. Fuel level at 75 percent.
11/19/75	316	Loop 3 inoperative. Input regulator iced up - 4 psi 75 percent fuel in tank.
12/22/75	204	Visited site to exchange filter amplifier and check TEG power. Removed filter amplifier, S/N 19, and installed filter amplifier, S/N 20.
12/22/75	305	Loop 3 inoperative. This site has had low power. Removed TEG, ID 34, and installed unit ID 53. Removed ice from exhaust stack.

Table 2, Continued

Date	Site	Work performed
12/22/75	345	Loop 3 inoperative. Site out of propane. Installed 25-gallon propane tank as a temporary fuel supply. Removed filter amplifier, S/N 16, and installed S/N 04.
2/13/76	204	Visited site to check low power. Removed TEG No. 52 and installed TEG No. 45. Took TEG No. 52 to MMC for maintenance.
2/13/76	302	Visited site to check low TEG output. Replaced burner orifice and corrected low output trouble.
2/13/76	323	Loop 0 inoperative. Fuel system was out of fuel. Installed two 100-pound bottles of propane (50 gallons).
2/13/76	345	Site was out of fuel. Installed two 100-pound bottles of propane (50 gallons).
2/17/76	201	Loop 3 inoperative. Cause of failure was not at this site. Found temperature chamber vent doors slightly open. Knocked ice off of stack.
2/17/76	206	Loop 3 inoperative. Trouble not found at this site. Found temperature chamber vent doors slightly open. Knocked ice off of stack.
2/17/76	312	Loop 3 inoperative. Cause of failure not at this site.
2/17/76	316	Loop 3 inoperative. Trouble was not at this site. Found slightly low power due to dirty orifice on TEG. Increased fuel pressure from 7 to 7.5 pounds. Temperature chamber vent doors were slightly open. Knocked ice off stack.
2/17/76	202	Loop 3 inoperative. Found 500-gallon tank empty. Found broken brass nut on input line to input regulator (not new type). Refueled with two 100-pound bottles of propane (50 gallons). Removed TEG No. 33 for maintenance and installed TEG No. 34. Temperature chamber vent doors were slightly open.
3/01/76	306	Low power loop 3, no data word from Site 306. Replaced TEG unit 46 with unit 52. Old unit had low power.
3/01/76	345	Low power, loop 3 inoperative. Installed new Marquette regulator in place of old regulator. Replaced TEG unit 35 with unit 33 and replaced BGA 8 with BGA 12. Unit appeared to draw too much current.

Table 2, Continued

Date	Site	Work performed
04/01/76	345	Loop 3 inoperative. Site out of fuel. Installed 2 each 50-pound bottles of propane.
04/02/76	202	Refueled site. Installed 2 each 50-pound bottles of propane.
04/02/76	323	Refueled site. Installed 2 each 50-pound bottles of propane.
04/23/76	304	Loop 1 dead. Fuel line was plugged with ice. Cleaned and repaired. Replaced fuel filter.
05/17/76	205, 206, 301, 312, 345	Pre-rollup inspection.
05/18/76	201	Dismantled site. Exhausted remaining fuel from tank. Removed control interface relay cards and rf transmission system and returned to MMC. Radio antenna tower lowered in preparation for removal from site.
05/18/76	205	Dismantled site. Exhausted remaining fuel from tank. Removed control interface relay cards and rf transmission system and returned to MMC.
05/18/76	206, 306	Dismantled site. Exhausted remaining fuel from tanks. Removed control interface relay cards and rf transmission system and returned to MMC. Removed tower from base.
05/18/76	356	Dismantled site. Exhausted fuel from tank. Removed control interface relay cards and rf transmission system and returned to MMC.
05/19/76	304	Site had intermittent operation, AEE too warm. Adjusted temperature chamber vent doors for proper operation.
05/19/76	305	Dismantled site. Exhausted remaining fuel from tank. Pulled tank out of ground. Removed control interface relay cards and rf transmission system. Lowered antenna tower. Tower was dropped causing very little damage.
05/19/76	345, 205	Dismantled site. Antenna tower lowered in preparation for removal from site.

Table 2, Continued

Date	Site	Work performed
05/20/76	312, 316	Dismantled site. Exhausted remaining fuel from tank. Removed control interface relay cards and rf transmission system and returned to MMC. Lowered antenna tower and prepared it for removal from site.
05/20/76	356	Dismantled site. Lowered antenna and prepared it for removal from site.
05/24/76	301	Traveled to site by helicopter to dismantle it. Exhausted remaining fuel from tank and pulled tank out of ground. Removed control interface relay cards and rf transmission system and returned to MMC. Lowered antenna towers (2 ea) and prepared them for removal from site. Rolled up 600 ft of Heliax cable.
05/24/76	302	Traveled to site by helicopter to dismantle it. Exhausted remaining fuel from tank. Removed control interface relay cards and rf transmission system and returned to MMC. Lowered antenna tower in preparation for removal from site.
05/24/76	312	Traveled to site by helicopter to continue dismantling. Began rollup of spiral four cable.
05/25/76	303	Dismantled site. Removed TEG, filter amplifiers, rf transmission system, triax seismometers and returned to MMC. Portion of ALPA electronics also removed.
05/26/76	304	Visited site for pre-rollup inspection. Removed control interface relay cards and rf transmission system and returned to MMC.
06/01/76	356	Dismantling site. Removed seismometers and transported them to MMC.
06/02/76	304	Dismantling site. Lowered radio tower and prepared it for removal. Removed seismometers and transported them to MMC.
06/03/76	305	Dismantling site. Removed seismometers and packed for shipment. (S/Ns 033, 039, 037 and stabilizer S/N 018). Transferred fuel tank and two 10 ft antenna tower sections to site 204.
06/03/76	345	Dismantling site. Removed seismometers and packed for shipment (S/Ns 048, 013, 041 and stabilizer S/N 019). Transferred fuel tank and two 10 ft antenna sections for tower to site 345.

Table 2, Continued

Date	Site	Work performed
06/04/76	205	Removed seismometers and prepared for shipment (S/Ns 061, 046, 051 and stabilizer S/N 002). Transferred fuel tank and two 10 ft sections of antenna tower to site 101.
06/05/76	206	Removed seismometers and prepared for shipment (S/Ns 049, 057, 005 and stabilizer S/N 014). Transferred fuel tank and two 10 ft antenna tower sections to site 202.
06/05/76	306	Removed seismometers and prepared for shipment (S/Ns 047, 042, 052 and stabilizer S/N 011). S/N 052 has damaged locking device and flexures.
06/07/76	201	Fuel tank removed and transferred to Site 203 along with two 10 ft sections of antenna tower and all coaxial cable.
06/07/76	316	Removed seismometers and prepared for shipment (S/Ns 012, 044, and 035; stabilizer S/N 017).
06/08/76	301	Removed seismometers and prepared for shipment (S/Ns 056, 032 and 028. Stabilizer S/N 016 is defective, will not retract). Transferred fuel tank, two 10 ft sections of antenna tower and coaxial cable to site 323.
06/08/76	312	Removed seismometers from well and prepared for shipment (S/Ns 010, 038, 054 and stabilizer S/N 015).
06/09/76	202	Transferred TEG, Hoffman box, and seismometers (S/Ns 036, 053, 026 and stabilizer S/N 006) to MMC.
06/09/76	302	Removed seismometers and prepared for shipment (S/Ns 025, 024, 027 and stabilizer S/N 007). Transferred fuel tank and coaxial cable to site 323.
06/09/76	323	Removed seismometers and prepared for shipment (S/Ns 017, 019 and 058; stabilizer S/N 008).
06/10/76	101	Removed seismometers and prepared for shipment (S/Ns 004, 023, 015).
06/10/76	204	Removed seismometers and prepared for shipment (S/Ns 022, 014, 033 and stabilizer S/N 010).
06/10/76	334	Removed seismometers from well and prepared for shipment (S/Ns 034, 011, 009, holelock S/N 01).

Table 2, Continued

Date	Site	Work performed
06/11/76	101	All ALPA electronics, seismometers and other components have been removed from site and taken to MMC for disposal. ALPA responsibility for site restoration has been completed.
06/11/76	201	Removed seismometers and prepared for shipment (S/Ns 050, 045, and 029). All restoration work around site completed except for building removal and trash pick up.
06/11/76	203	Removed seismometers from well and prepared for shipment (S/Ns 006, 007, and 021).
06/12/76	203, 204, 303, 323, 334	All ALPA related equipment removed from site and taken to MMC for final disposition.
06/14/76	205	Secured wellhead cover and performed general restoration of site grounds. Took coaxial cable to MMC for LPDARTS use.
06/14/76	305	Secured wellhead cover and performed general restoration of site grounds. Transferred coaxial cable to site 334.
06/14/76	306	Secured wellhead cover and performed general restoration of grounds at site. Transferred two antennas to MMC for LPDARTS and coaxial cable to site 101.
06/14/76	316	Secured wellhead cover and performed general restoration of grounds. Transferred two antennas to MMC for LPDARTS use.
06/14/76	356	Secured wellhead cover and performed general restoration of site grounds. Transferred two antennas to MMC for LPDARTS and coaxial cable to site 204.
06/15/76	312	Rolled up all spiral four cable and prepared for removal from site.
06/16/76	202	Secured wellhead cover.
06/16/76	302	Secured wellhead cover, completed ground restoration work at site area and constructed water control diversion on road leading into site per BLM instructions. Transferred two 10 ft sections of antenna tower to MMC for LPDARTS.

Table 2, Continued

Date	Site	Work performed
06/16/76	304	Antenna tower removed from site. One section transferred to Site 303, the remainder to MMC for LPDARTS.
06/17/76	205, 206, 301, 345	Secured wellhead cover and completed restoration of grounds in site area. Building prepared for removal from site.
06/18/76	312	Completed restoration of grounds at wellhead site and at building site. Staged all trash, spiral four cable and reels for removal from site area.
06/21/76	101, 204, 323, 334	Delivered one each wellhead construction kit.
06/21/76	312	Fuel tank and two antennas removed from site and taken to MMC for LPDARTS.
06/22/76	201, 205, 305, 306, 356	Made all preparations for air lift of building, equipment and debris from site area.

Table 3. Summary of work done during visits to remote sites

	101	201	202	203	204	205	206	301	312	302	323	303	334	304	345	305	356	306	316	TOTALS
REFUEL SITE	1	1	3	1	1	1	1	1	1	1	3	1	1	1	4	1	1	1	1	26
REPAIR FUEL LEAK	1		1	1	1	1			1	1		2	1	1	1	1	1	1	1	16
SEARCH FOR EQUIPMENT MALFUNTION		2	2	3	3	1	1		1	1	4	1	1	3	4	2	1	3	2	35
REPLACE TC-200 BASKET		1			1															2
REPLACE POWER CONDITIONING UNIT		1																		1
REPLACE AMPLIFIER FILTER	1	1			1									1	1	1	1			7
REPLACE CONTROL INTERFACE RELAY CARD						1						1								2
REPLACE CONTROL POINTS MODULE						1														1
INSTALL FUEL LEVEL MONITOR												1								1
REPLACE ADC											1							1		2
ADJUST SEISMOMETER FREE PERIOD					1	1					1	1								4
REPLACE BATTERY BANK			1									1								2
INSTALL FREE PERIOD ADJ. CARD			1		1	1	1				1			1	1					7
REMOVE FREE PERIOD ADJ. CARD			1								1									2
REPLACE BGA				1																1
ADJUST TEMP CONTROL DOOR				1										1				1		3
ADJUST TEG					1					1									1	3
REPLACE FUEL FILTER														1						1
CLEAR SITE BLDG AND AREA				1	1	1	1			1	1					1	1	1	1	10
REPLACE PROPANE REGULATOR															1					1
REPLACE TEG	1		1	2	1											1		1		7
REPLACE TEMP CONTROL DOOR	1	1	1	1		1	1			1						1	1	1	1	11
INSTALL NEW EXHAUST STACKS				1															1	2
INSTALL PADLOCK			1	1							1		1							4

3.2 REMOTE SITE FUEL SYSTEM

During the July 1975 refueling operations, propane leaks were found and repaired at 14 remote sites. Although most of the leaks were small, it was imperative that they be stopped, as even a small leak can discharge a significant portion of the total supply during the period of a year. The development of fuel leaks and the attendent loss of propane was one of the most serious ALPA operational problems.

The propane fuel supply system design was reviewed to determine why leaks occurred so frequently at the remote sites. It was concluded that:

a. The system used many joints between dissimilar metals. These cracked or loosened and became leaky when cycled over large temperature ranges.

b. The system transported gas at high pressure through low pressure fittings.

c. The system used materials that were not approved for the service required.

It was planned to replace the propane supply system plumbing with fittings and tubing that had like cofficients of thermal expansion and were designed to operate at the system pressures. Aluminum aircraft plumbing was to be used, as it closely matched the pressure regulator material, was stronger than brass and copper fittings, was not porous to propane gas, was designed to operate at system pressures and temperatures, and was readily available at reasonable cost. The retrofit program was abandoned when it was learned that the 19-element ALPA operation would be terminated.

During the third week in October 1975, daily high temperatures were in the vicinity of freezing and the humidity was abnormally high. The following week, the temperatures dropped to below 0°F. This drop, together with the high humidity, caused the exhaust stacks on several TEGs to become clogged with ice. This became evident during November, when low power output was detected at several sites. Site 306 was visited and found to have a completely blocked exhaust stack. To restore proper operation, the stack was removed. The stacks at all other sites cleared themselves.

Unseasonably cold weather was experienced by the Fairbanks area during the first half of December 1975. The temperature did not rise above -50°F for 10 consecutive days in some of the suburbs around the city. Performance of the ALPA was adversely affected by this cold weather. Loop 0 was intermittent for nearly a week, and Loop 3 failed completely for more than a week. After temperatures moderated, both loops became operational again.

During April 1976, Loop 1 operation became intermittent, then stopped completely. Operation was restored by removing ice from the TEG fuel line at site 304.

Sites 345, 323, and 202 were refueled on 1 and 2 April. Those sites, which developed leaks and ran out of fuel during the winter months, were operated from portable (50 pound) bottles of propane.

3.3 TEMPERATURE CONTROL DOORS

Work was started during the previous contract period and was continued into this report period to redesign the remote site temperature control doors. These had frequently failed to operate properly, sticking in either the open or closed position and causing AEE temperatures to rise above or fall below acceptable limits.

An engineering model of a new temperature-control door was built, inspected, and approved in July 1975. These units were designed to close tightly without binding, and to accommodate shrinking and twisting of the vents in which they mount. Fourteen new doors were built and were installed at the ALPA. All fit correctly and operated satisfactorily. Additional units were fabricated and shipped to the ALPA for installation as weather permitted.

3.4 TELETYPEWRITER

The short operating life (20 days) of a newly repaired teletypewriter prompted a review of the procedures used to operate the instrument. The review emphasized the importance of frequent and thorough lubrication and pointed out that ALPA teletypewriter life could be greatly increased if the printer motor was shut off when the unit was not printing. Circuitry used to automatically perform this function for a similar teletypewriter in the Teledyne Geotech data processing laboratory was investigated but was found unadaptable to the ALPA data acquisition system. Therefore the efforts to extend the ALPA teletypewriter life were limited to the establishment of preventive maintenance procedures that would ensure frequent machine lubrication.

3.5 FULL FREQUENCY CALIBRATION

The annual measurement of full frequency responses was performed on all ALPA data acquisition channels on 27 July 1975. The teletypewriter printout, reproduced in figure 2, indicated that 31 out of the 54 active channel responses were out of tolerance.

		PERCENT DEVIATION																		
	Period	323	302	303	334	304	203	301	101	204	345	305	205	356	306	316	206	201	312	202	Tolerance
	10	0	+ 7	+ 3	+ 5	+10	+ 8	+ 3	+ 3	+ 4	0	+ 7	+91	-39	+ 6	+ 8	+10	-100	-100	+15	15
	15	-30	+ 8	+ 3	+ 8	+ 6	+ 8	+ 8	+ 7	+ 3	+ 2	+10	-77	-89	+ 6	+ 7	+ 8	-100	-100	+10	10
	20	- 2	+ 2	+ 2	+ 2	+ 1	+ 3	+ 2	+ 1	0	- 1	+ 4	-94	-94	+ 1	0	+ 2	-100	-100	+ 2	5
	25	0	0	0	0	0	0	0	0	0	0	+ 0	0	0	0	0	0	-100	-100	0	0
	30	0	- 2	- 4	- 1	- 2	- 3	- 6	0	0	- 1	- 2	-27	-28	- 1	- 3	- 2	-100	-100	- 2	5
T1	40	0	- 4	-12	0	- 6	- 4	-19	+ 5	- 1	- 7	- 3	-58	-59	- 1	- 1	- 1	-100	-100	- 2	10
	50	- 4	- 7	-20	- 2	-12	- 8	-29	+ 9	- 6	-14	- 5	-56	-57	- 4	- 2	- 2	-100	-100	- 3	12.5
	60	- 5	- 5	-24	- 1	-13	- 8	-34	+17	- 7	-17	- 4	-95	-98	- 5	+ 1	0	-100	-100	0	15
	80	-12	- 7	-30	- 4	-19	-12	-40	+21	-13	-23	- 6	-93	-98	- 9	0	0	-100	-100	- 2	20
	100	+ 1	+ 8	-20	+11	- 6	+ 1	-31	+45	0	-11	+ 9	-93	-98	+ 5	+18	+18	-100	-100	+15	25
	10	+ 4	+ 5	+40	+ 9	0	+ 8	+ 2	+ 1	+ 2	0	+ 8	+ 3	+ 5	+10	+11	+11	-100	-100	+ 8	15
	15	-25	+ 6	+ 3	+10	0	+11	+ 5	+ 5	+ 2	+ 4	+ 9	+ 4	+ 4	+ 6	+10	+ 9	-100	-100	+10	10
	20	+ 1	+ 2	+ 3	+ 3	- 2	+ 4	+ 1	0	- 2	0	+ 5	0	0	+ 1	+ 3	+ 4	-100	-100	+ 3	5
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-100	-100	0	0
	30	- 2	- 1	- 3	- 2	0	- 6	- 3	0	0	0	- 2	0	0	- 1	- 3	- 3	-100	-100	- 3	5
T2	40	- 7	- 1	- 4	- 3	+ 4	-15	- 6	0	+ 3	+ 2	- 1	0	0	- 2	- 5	- 9	-100	-100	- 9	10
	50	-16	- 3	- 8	- 5	+ 4	-26	-12	- 2	+ 2	+ 2	- 2	- 1	- 2	- 3	- 9	-15	-100	-100	-15	12.5
	60	-20	- 1	- 8	- 4	+ 6	-30	-13	- 2	+ 5	+ 4	0	0	- 1	- 1	-10	-17	-100	-100	-17	15
	80	-27	- 4	-12	- 6	+ 1	-37	-19	- 7	+ 3	0	- 1	- 3	- 4	- 2	-14	-23	-100	-100	-21	20
	100	-16	+11	+ 2	+ 9	+17	-28	- 6	+ 7	+21	+17	+17	+12	+11	+14	0	-10	-100	-100	- 8	25
	10	+ 6	+ 3	+ 8	- 2	+15	+ 1	+208	+ 7	+ 3	0	+10	+ 7	+11	+ 8	+ 6	+ 3	-100	-100	+ 2	15
	15	-27	+ 6	+ 1	0	+10	+ 4	+ 8	+ 9	+ 1	+ 4	+12	+10	+12	+ 7	+ 4	+ 5	-100	-100	+ 5	10
	20	+ 1	+ 1	0	- 1	+ 2	0	+ 2	+ 2	- 2	0	+ 3	+ 3	+ 4	+ 1	- 1	0	-100	-100	0	5
	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-100	-100	0	0
	30	- 1	- 1	- 1	0	- 4	- 3	- 3	- 2	0	- 1	- 4	-1.	- 5	- 1	- 2	- 2	-100	-100	- 2	5
T3	40	0	- 1	0	+ 3	- 8	- 8	- 5	- 2	+ 7	0	- 6	-31	-10	- 1	0	- 3	-100	-100	- 3	10
	50	0	- 2	- 1	0	-12	-14	- 9	- 4	+10	- 1	- 8	-44	-16	- 3	0	- 8	-100	-100	- 6	12.5
	60	+ 3	0	0	- 2	-11	-16	- 9	- 2	+15	0	- 5	-49	-18	- 2	0	- 9	-100	-100	- 6	15
	80	+ 1	- 3	- 5	-10	-12	-22	-13	- 3	+12	- 2	- 6	-55	-22	- 5	- 3	-15	-100	-100	-10	20
	100	+19	+13	+ 9	+ 1	+ 4	- 9	0	+11	+31	+13	+10	-49	- 9	+ 9	+12	- 2	-100	-100	+ 3	25

Figure 2. ALPA full frequency calibration performed 27 July 1975

Work was undertaken on a priority basis to bring the frequency response of all channels into tolerance. By the end of October 1975, 52 of the 54 active channels were operating within tolerance. Channel responses were brought into tolerance by:

a. Simply rerunning the full frequency response. In some cases channel responses were erroneously indicated as out of tolerance because noise or event data were detected while the channel response was being measured.

b. Adjusting the seismometer free period.

c. Replacing a defective filter.

The responses of two channels, 301-1 and 205-3, could not be brought into tolerance because the periods of seismometer modules in these channels could not be adjusted. It was planned to pull these two seismometers from their boreholes and repair them, but the decision to stop ALPA operations was received before the weather moderated enough to permit such work.

3.6 EQUIPMENT SHIPPING CONTAINERS

Damage to instrumentation shipped to ALPA increased greatly as pipeline construction activity increased. Pasteboard cartons, which were strong enough for shipments within the "lower 48" states, were severely torn and broken when shipped to Fairbanks. Therefore, after 1 September 1975 all instruments shipped to ALPA were packed in wood crates. Three reusable wood crates were built specifically for amplifier-filter shipments. These featured fitted shock absorbing material and extra strong construction. All instruments transported in these boxes arrived at Fairbanks without damage.

3.7 AMPLIFIER FILTER

During October 1975, one Model 32850 filter amplifier was installed at site 356, then removed when one of the channels was found inoperative and the other channels were found to have reversed polarities. This unit had just been returned from our Garland laboratory, where it had been repaired and completely checked. Upon being returned again to our Garland laboratory, it was completely checked and found operational. After conferences with ALPA personnel, it was put in its shipping crate and subjected to mechanical shocks like those it might receive during handling by shipping personnel. When retested one channel (different from that reported inoperative at ALPA) was found inoperative. Operation was restored by tapping on the quartz crystal used in the oscillator for that channel. Conferences with our electronics designers revealed that the particular model of quartz crystal used in the filter amplifier has proven unreliable in other applications, and has been a source of noise within our pass band. Accordingly, we instituted a program to replace the quartz crystals in all Model 32850 amplifier filters as they are returned to our Garland laboratory for maintenance.

3.8 MMC FACILITIES

Two new storm doors were installed on the MMC building in November to prevent snow from blowing in and to increase the utility of enclosed building areas.

The heating system at the MMC stopped operating on 3 December when the low temperatures caused fuel oil in the supply lines to thicken and stop flowing into the furnaces. An emergency supply system that used jet fuel was temporarily connected to the furnaces so that building heat could be maintained while the problem was reviewed and a fix was devised. It was decided that future failures due to fuel oil thickening could best be prevented by installing a pump to aid flow in the gravity feed fuel system. Modifications were completed on 12 December.

3.9 MAGNETIC TAPE SYSTEM

The magnetic tape system used to record data continuously and to provide backup during transmission link outages failed early in January. Checks showed that tapes recorded by the system contained little more than parity errors. Troubleshooting work revealed that the system malfunctions were caused by a multiplicity of component failures. There was a defective integrated circuit in the tape controller and a defective write amplifier board in the No. 1 tape deck electronics. Dirty contacts on a controller printed circuit board had caused intermittent operation of the tape controller error light. Correction of these malfunctions restored system operation.

4. SPECIAL TESTS AND MODIFICATIONS

4.1 SPECIAL TESTS

Several special tests were conducted during this report period at the request of the Project Officer. In general, these required the introduction of special signals into the array data channels and their transmission to the SDAC in Alexandria, Virginia. These special tests are listed and described in appendix 3.

4.2 DEVELOCORDER

During the previous contract period, work was begun to replace the Oscilloscopes, Tektronix Model 502, which were used as subassemblies in the ALPA Develocorders. These units had become erratic and unstable after five years of continuous service and could not be restored to good performance without excessively costly maintenance. Attempts to repair these oscilloscopes were further discouraged by the facts that Tektronix had discontinued manufacture of the model and had discontinued the stocking of its replacement parts.

A new, modern, solid-state oscilloscope, Hewlett-Packard Model 1221A was selected as a replacement for the Model 502, and work was undertaken to design and fabricate the hardware needed to adapt the new oscilloscope for use in the ALPA Develocorders. This work was completed during July and August of this report period and the new units and hardware packages were shipped to the ALPA. They were installed in the MMC Develocorders which were restored to full operation during September 1975. A copy of the hardware modification instructions for this job is presented in appendix 2.

4.3 PRIMARY FUEL REGULATOR

The search was continued during this report period for a regulator that will reliably control the pressure of propane fuel supplied to the thermoelectric generators (TEGs) at the remote field sites. A field site power system was simulated at the MMC so that regulators could be observed while being tested under environmental conditions that approached those at the remote field sites. The first regulators, Victor Model VTS410A, tested at the MMC were found to be unstable. Their outputs fluctuated over a 3 psi range when first installed and continued to do so throughout the test period. The second regulator tested, a Marquette Model 25-160, showed good stability during two months of testing. In March, when site 345 was visited to perform maintenance work, a Marquette Model 25-160 was installed there. The regulator performed satisfactorily until array operations were terminated.

5. RELIABILITY

The demonstrated reliability of the ALPA for this report period showed a decrease from the previous two report periods but continued to be above the calculated value. Table 4 shows a comparison of the mean times between failure for these time periods.

Table 4. Overall ALPA reliability

Time period	MTBF in hours
1 July 1975 to 24 May 1976	164
1 July 1974 to 30 June 1975	179
1 August 1973 to 30 June 1974	167
Predicted by calculation	130

Table 5 shows the ALPA demonstrated reliability broken down by individual pieces of equipment or subsystems. The stated MTBF values do not include failures of components such as indicator lamps or visual monitors that are not essential to the performance of the listed device.

Seven of the 30 types of equipment used at ALPA have experienced no failures since being put into operation on 1 November 1970. All are electronic devices that have been operated in sheltered environments with at least partial temperature controls. Nineteen types of equipment have experienced some failures since 1 November 1970, but have observed MTBFs greater than those predicted.

During this report period, four types of equipment exhibited MTBFs lower than their predicted values. These were the TC-207 Data Transfer/Tx, the TC-215 Tape Controller, the Model 515 TEG, and the Model 31383 Fuel System. The data transfer/Tx and tape controller failures were caused by solid-state circuit components. The TEGs failed because of aging thermopiles, clogged burner orifices, or iced exhaust stacks. Fuel system failures were caused by leaking joints or regulators, and by ice formations in fuel lines.

6. RECONFIGURATION SUPPORT

The following work was performed between 12 March and 30 June 1976 to assist the ALPA/DET 460 reconfiguration called for in AFTAC Project T/4107.

Designs were completed for concrete slabs that will be used as foundations for the remote site electronics enclosures, for propane tanks, as work surfaces surrounding borehole wellheads, and as foundations for the KS winches.

The designs were completed for the antenna arrays and tower configurations at the MMC and the DET 460 CRS.

The TEG fuel system was redesigned to accommodate the larger generator and to prevent clogging with ice during cold, humid weather.

The remote site building design was modified to accommodate the new, 50-watt TEG and the new exhaust stack assemblies.

Propane was carried to the reconfigured sites LPA, LPB, LPC, LPE, and LPF by an HH-3 Air Force helicopter. The propane tanks at site LPD were filled by a commercial gas company truck.

Table 5. Equipment reliability

Description	Qty	From 1 July 75 to 24 May 76			Cumulative from 1 Nov 70			
		Accumulated unit hours	Number failures	Observed MTBF	Unit hours	Number failures	Observed MTBF	Predicted MTBF
TC-201 A-D Converter	18	142,128	1	142,128	894,600	9	994,000	26,800
TC-202 D-A Converter	21	165,816	0	-	1,040,904	1	1,040,904	26,400
TC-203 Analog Multiplexer	18	142,128	0	-	894,600	4	223,650	106,400
TC-206 Control Points	36	284,256	1	284,256	1,789,200	4	447,300	27,600
TC-207 Data Transfer/Tx	4	31,584	3	10,528	195,072	3	65,024	28,400
TC-208 Data Transfer/Rx	4	31,584	0	-	195,072	1	195,072	30,700
TC-209 Data Transfer Remote	18	142,128	0	-	894,600	2	447,300	28,900
TC-210 Data Buffer	18	142,128	0	-	894,600	6	149,100	58,500
TC-211 I/O Driver	3	23,688	0	-	146,304	0	-	56,800
TC-212 Modem	23	181,608	0	-	1,121,664	5	224,333	19,500
TC-214 BG Amplifier	18	142,128	4	35,532	894,600	39	22,938	29,800
TC-215 Tape Controller	1	7,896	2	3,948	48,768	5	9,754	5,300
TC-216 Time Code Interface	1	7,896	0	-	48,768	0	-	22,900
TC-230 Prog. Delay Generator	1	7,896	0	-	48,768	0	-	46,500
TC-231 Channel Buffer	2	15,792	0	-	97,516	0	-	44,400
TC-251 EIA Interface/Rx	1	7,896	0	-	48,768	1	48,768	20,600
TC-252 EIA Interface/Tx	1	7,896	0	-	48,768	0	-	17,500
703 Basic Computer	2	15,792	0	-	97,516	5	19,503	7,900
703 Power Supply	2	15,792	0	-	97,516	6	16,253	10,000
703 4K Memory	4	31,584	0	-	195,072	0	-	3,700
RX250 Telemetry Set	23	181,608	0	-	1,121,664	5	224,333	23,600
DC-DC 40 Power Cond. Unit	19	150,024	1	150,024	926,593	10	92,659	13,400
TM7 Tape Memory System	2	15,792	3	5,264	97,516	43	2,268	2,900
23610 Seismometer Module	54	426,384	0	-	2,686,800	10	268,680	56,200
ASR-33 Teleprinter	1	0	0	-	28,056	3	9,352	1,000
ASR-35 Teleprinter	2	15,792	1	15,792	68,144	7	9,735	1,700
Remote 515 TEG	19	150,024	7	21,432	926,593	48	19,304	58,500
31383 Fuel System	19	150,024	18	8,335	926,593	68	13,626	33,000
T12 Timing System	1	7,896	0	-	48,768	0	-	6,900
32850 Amplifier/Filter Assy	18	142,128	7	20,304	894,600	44	20,332	9,900

7. ROLLUP

The work of preparing for and accomplishing the deactivation and rollup of the ALPA was undertaken from 12 March to 30 September 1976. Twelve sites, numbers 201, 205, 206, 301, 302, 304, 305, 306, 312, 316, 345, and 356 were completely rolled up. All instrumentation, equipment, and buildings were removed from these sites, and the land was restored to the conditions required by the cognizant government agency. Seven sites, numbered 101, 202, 203, 204, 303, 332, and 334 were stripped of all instrumentation and equipment except for the propane tanks, antenna towers, and the AEEs. These were left on site for use in the reconfigured ALPA/DET 460 array.

Captain R. J. Woodard, the ALPA Project Officer, and Mr. M. G. Gudzin, the ALPA Program Manager, visited the ALPA, 29 March through 2 April, to coordinate the rollup and reconfiguration work. They met, at separate times, with Messrs. Paul Costello and John Stevenson of the BLM; Messrs. Bill Copeland and Howard C. Guinn of the State of Alaska, Department of Natural Resources, Division of Lands; Lt. Col. E. W. Martin, Captain Perez, and MSgt. Kunkle of DET 460; and the ALPA staff.

In April, containers designed specifically for shipping triax seismometer modules, stabilizers, holelocks, and cable assemblies were fabricated and shipped to the ALPA.

On 17 May, sites 205, 206, 301, and 345 were visited to determine if site conditions were favorable to the performance of rollup work. It was concluded that these sites were dry enough to permit such work but there was some question as to whether or not the ground had thawed sufficiently to permit propane tank removal. Upon return from the site visits, a planning meeting was held to review rollup procedures and rollup tools and material were gathered together.

Rollup work was begun on 18 May and was continued as weather permitted, throughout the remainder of the month. Transportation to sites 303 and 304 was provided by ground vehicle. Transportation to all other sites was provided by commercial helicopter.

A Sikorsky S55T helicopter was used to transport the rollup teams and large loads; a Bell 206B helicopter was used to transport the rollup team and small loads. The rollup team consisted of three or four men, depending upon the work that was to be accomplished. The following work was accomplished during May.

The antenna systems and the towers were dismantled at sites 201, 205, 206, 301, 302, 303, 305, 306, 312, 316, 345, and 356. At each site, the communications antenna was removed, the coaxial cables were disconnected from the AEE, the ground wire was removed, the base bolts were removed. Then the guy wires were cut, and the tower was lifted by helicopter, carried to level ground and laid on its side. The telemetry antenna and the tower components were dismantled on the ground.

The propane tanks were emptied at all 12 deactivated sites. Then earth was removed from around all tanks except at site 304, and attempts were made to jack the tanks free of the earth so that they could be lifted by helicopter. These attempts were unsuccessful at sites 201, 205, 206, 306, 316, 345, and 356, where the frozen ground held the tanks down firmly. The tanks at sites 301, 302, 305 and 312 broke free of the earth and were propped away from the earth to ensure easy pickup by a helicopter.

The radio equipment and relay boards were removed from all 12 deactivated sites and were taken to the MMC for use in the reconfiguration tasks.

Site 303 was dismantled. The styrofoam insulation was removed from the borehole with a vacuum cleaner, and the triaxial instrument package was removed and dismantled. The sensor modules were opened, equipped with spring retainers, and reclosed. They were packed in their shipping containers and transported to the MMC along with the stabilizer, radio equipment, TEG, and amplifier filters. The wellhead cover was made secure by installing long bolts through the cover, into the wellhead assembly, and bending them over with a hammer to prevent their removal.

Remote site rollup work continued throughout June. By the end of the month, the following tasks were completed at sites 201, 205, 206, 301, 302, 304, 305, 312, 345, and 356.

All antennas, towers, and coaxial cables were dismantled.

Tower sections needed for the ALPA reconfiguration were transported to the MMC and the seven sites that will be rebuilt.

All propane tanks were emptied and dug up. Seven tanks were transported to the sites to be configured. The tank at site 312 was transported to the MMC, outfitted with new valves and a new safety hose (from the pop-off valve). This tank is ready to be loaded aboard the Air Force helicopter and used for refueling.

Seismometers were removed from the boreholes at all 19 remote sites, prepared for shipment, and packed in barrels. Seven were made available to DET 460 personnel, who picked them up on 4 June in response to Telex request No. 9189 from FM 1156 TCHOS, Wheeler AFB, HI/LG.

Each wellhead cover was secured by bending over six long machine screws installed for this prupose.

Land restoration was performed at all 12 remote sites. The wellhead assemblies were covered with rocks, gravel and earth as available. Holes left by the removable of the propane tanks were filled wherever earth was available. Where fill was not available, the hole edges were broken down, leaving a shallow depression. Concrete antenna tower bases were covered with earth or with tree trunks and dead brush.

Spiral-four cable between the sensor and radio locations at site 312 was wound into coils weighing approximately 150 lb each and transported by helicopter to the sensor location.

Old barrels and trash were collected and placed in a central location at each remote site for pickup at a later date by the Air Force helicopter.

All rollup tasks except for the disposition of contract government property were completed during July. All materials and equipment not required for the reconfiguration of ALPA were transported and stored at Eielson Air Force Base, Alaska. The smaller pieces of equipment were stored in Building No. T3218; the remote site buildings (AEEs) and propane tanks were stored in a lot made available for that purpose.

An HH-3 helicopter and crew from the Elmendorf Air Force Base transported all material from remote sites 201, 205, 206, 301, 302, 304, 305, 306, 312, 316, 345, and 356 to the Eielson Air Force Base. They also supported the fueling of the reconfigured sites and transported a portion of the MMC material to the Eielson Air Force Base. The remaining MMC material was transported to the Eielson Air Force Base by furniture van. Materials moved by HH-3 helicopter to the Eielson Air Force Base included triaxial seismometers (packed in 55-gallon drums), propane tanks, antenna towers, remote site buildings(AEEs), and assorted trash left when the 12 remote sites were dismantled.

On 23 July, Captain Woodward and A. J. Feller visited all 12 dismantled sites to inspect their condition and to accomplish any work needed to finalize their rehabilitation. The next day, they accompanied Paul Costello of the Bureau of Land Management on his inspection of these sites. He gave his verbal approval of the site rehabilitation and indicated that written approval would be forthcoming.

The land rehabilitation work at site 304 was completed by bulldozer on 1 September. Mr. Howard C. Guinn, Land Management Officer for the State of Alaska at Fairbanks, and Mr. V. F. Johnson, Teledyne Geotech, visited site 304 to inspect the land condition there. Mr. Guinn expressed verbal approval and indicated that he would submit a letter accepting the land as being suitably restored.

8. DISPOSITION OF GOVERNMENT CONTRACT PROPERTY

The following actions were taken to dispose of the Governnment Property that was acquired during the contract term or that was provided as Government Furnished Property.

In accordance with Modification A00001 issued on 30 July 1976, 412 items as shown in appendix 4 were transferred to Contract F08606-74-C-0045 for the reconfiguration of ALPA. In addition to these items, one (1) H-P Power Supply, one (1) H-P Recorder and one (1) General Resistor Standard Voltage were also transferred to Contract F08606-74-C-0045 at the request of the Program Manager.

All spare parts accumulated during the operation of ALPA were transferred to FB4300 and shipped to McClellan AFB, CA, as directed in ASC letter dated 1 September 1976, reference appendix 4. This letter also directed that other equipment be transferred to FB4300 and shipped to the same address.

AFETR letter dated 14 October 1976, reference appendix 4, authorized disposition of equipment to FB4300 to be handled through the Eielson AFT Transportation Office by DET 460 personnel.

The remaining Government Property on Contract F08606-76-C-0006 has been declared excess to the DCASMA Office, Dallas, and Notice of Acceptance has been received through Plant Clearance Case Numbers S4801A0916-E, S4801AR0896-E, S4801AR0876-E and S3910A8106-E from DCASMA, Seattle. Disposition of this property will be made promptly upon receipt of instructions.

APPENDIX 1 to TECHNICAL REPORT NO. 76-12

STATEMENT OF WORK TO BE DONE

REPRODUCTION OF STATEMENT OF WORK
TO BE DONE UNDER AMENDMENT NO. 2
TO AFTAC PROJECT AUTHORIZATION
NO. VELA T/6707

a. All work in accordance with Tasks 5.2, 5.2.1, 5.2.2, 5.2.3, 5.2.4, and 5.2.5 of the VT/6707 Statement of Work to be Done should be terminated effective 1 June 1976.

b. The following paragraphs should be added to the VT/6707 Statement of Work to be Done.

"8.0 ALPA Reconfiguration

8.1 By 31 May 76, the contractor shall have prepared a set of inventories of all technical equipment, to include equipment condition codes. Among these should be inventories of: (a) Remote site and MMC equipment to be retained for use in the reconfigured ALPA, and (b) ALPA equipment which will be excess to the needs of the reconfigured ALPA/DET 460 array. In addition, all excess equipment shall have inventory breakouts to include: (a) MMC Automated Data Processing Equipment (ADPE), (b) remote site electronics equipment, (c) remote site shelter assemblies, and (d) a summary inventory of all excess items which will indicate: Nomenclature, Manufacturer, Model No., No. of Items and Condition of Items.

8.2 The contractor shall cease operation of the ALPA on 1 June 1976 and begin dismantling and removing all equipment that is not to be retained in the reconfigured ALPA. The removal of equipment from the remote sites shall be coordinated with reconfiguration operations to insure the necessary equipment is made available when needed. All seismometer boreholes and remote site leases that will not be used in the reconfigured ALPA, should be closed and restored in accordance with the approved Environmental Assessment, State of Alaska, BLM and private land owner requirements.

8.3 The contractor shall assist in the ARPA/Det 460 reconfiguration as specified in AFTAC Project T/4107, Amendment 8."

c. Time Schedule: All work under this project as amended should be completed by 30 Sep 76.

6 March 1975

STATEMENT OF WORK TO BE DONE

(1035TCHOG/AFTAC Project Authorization No. VT/6707/B/ETR)

1.0 Description/Definition of the ALPA Project

1.1 Objectives. This project is being undertaken to provide for the continued operation of the Alaskan Long Period Array (ALPA) under Project VELA in support of the Defense Advanced Research Projects Agency's (ARPA) objectives to demonstrate the utility of large seismic arrays in the detection and discrimination of earthquakes and underground explosions.

1.2 ALPA Description.

1.3 Scope and Duration. This project is scheduled to last for 15 months commencing on 1 July 1975, and may be extended by the government to last for a total of 39 months. During this period the ALPA is to be operated and maintained in such a way as to produce unique high quality seismic data for use in government sponsored research projects. The array may also serve as a test site for evaluation of new equipment and procedures

1.4 General Background. This project continues the operation of the ALPA which was installed starting in 1968 under Project VT/8707. Operation since then has been accomplished under Projects T/1707 and T/3707. Data from the array is transmitted to the Seismic Data Analysis Center (SDAC) for analysis and permanent retention.

2.0 ALPA Facilities:

2.1 The government will furnish the Monitoring and Maintenance Center (MMC) building located on Pedro Dome Alaska, along with each of the 19 remote site electronics buildings.

2.2 A complete description of these buildings is presented in "Installation, Operation and Maintenance Manual, Alaskan Long Period Array, Model 33000".

2.3 The government will furnish all electrical services, water, and sewage to the MMC.

3.0 Government Furnished Property. A copy of the government furnished equipment (GFE) presently being furnished to the ALPA contractor can be reviewed at the AFTAC project office, VELA Seismological Center, 312 Montgomery Street, Alexandria VA. The same GFE should be made available to the ALPA contractor under this procurement.

4.0 Contractor Furnished Property. The contractor is not required to furnish any property.

ATTACHMENT 1

5.0 Specific Tasks. The contractor shall supply the necessary personnel, services, and materials to operate the ALPA as described below.

5.1 Manning Requirements for Operation and Maintenance of the ALPA.

5.1.1 The contractor will provide a staff of at least three qualified personnel at the ALPA Monitoring and Maintenance Center (MMC) to man the array on a one-shift-per-day, five-days-per-week basis, with provision for a minimum of monitoring and maintenance on weekends and for emergency system maintenance and monitoring as required at other times.

5.2 The contractor shall operate and maintain all ALPA seismographic systems and equipment, all radio telemetry equipment, all components of the data acquisition systems, all special test and system evaluation equipment, and all ALPA facilities. The basic guidance for accomplishing all operations and maintenance tasks is provided in the "Installation, Operation, and Maintenance Manual, Alaskan Long Period Array, Model 33000", dated 1 October 1970, updated 1 February 1972, and 1 January 1975. All proposed deviations from these operations and maintenance procedures will be brought to the attention of the AFTAC Project Officer, and if approved, will be appropriately documented.

5.2.1 Implement and maintain a comprehensive quality control program to assure reliable and high quality data acquisition, transmission to the Seismic Data Analysis Center (SDAC) in Alexandria VA, and recording on both magnetic tape and develocorder film at the MMC.

5.2.1.1 The data acquisition systems are to be evaluated and if necessary changes are to be made in the seismographic system parameters to insure high quality seismic data is made available to the SDAC on 24 hour-per-day, seven-day-per-week basis.

5.2.2 Establish, maintain and execute a comprehensive program of preventive and emergency maintenance utilizing the results of data monitoring and historical records to insure that the ALPA systems continue to operate properly.

5.2.3 When quality data is not being received and recorded at the MMC, find and correct the problem in a timely and efficient manner.

5.2.4 Document all component failures in order to obtain statistical information pertinent to long term operations (e.g., meantime between failures for each equipment item).

5.2.5 Maintain an adequate stock of spare components and expendable supplies at the MMC to support continuous array operations.

5.2.6 Maintain, repair, and preserve the facilities and equipment associated with the ALPA in accordance with the Defense Contract Administration Services (DCAS) requirements and sound industrial practices.

5.2.7 Perform measures necessary to control erosion and surface degradation at all remote sites, at the MMC, and on any access routes leading to the remote sites.

5.2.8 Insure that the immediate area surrounding the MMC and each remote site is kept clean, and in an orderly fashion.

5.2.9 The contractor shall be responsible for furnishing the necessary general administrative and logistical support which should include but may not be limited to:

5.2.9.1 Vehicles and their maintenance.

5.2.9.2 Helicopter service to transport men and material to any remote site to perform maintenance operations.

5.2.9.3 Spare parts and administrative supplies.

5.2.9.4 Telephone service for the MMC.

5.2.9.5 Propane to fuel each of the 19 remote sites.

5.2.9.6 Fuel for the MMC heating system.

6.0 Applicable Specifications, Regulations, and Manuals

6.1 The "Installation, Operation and Maintenance Manual, Alaskan Long Period Array, Model 33000" shall be used as the basic guidance for the operation and maintenance of the ALPA.

6.2 The specifications defined in "System Specifications, Medium Aperture Long Period Array Model 33000" with its 35 attachments shall be used in conjunction with the operations manual defined in paragraph 6.1 above to insure all ALPA systems remain within tolerance limits and continue to supply quality data to the MMC and the Seismic Data Analysis Center in Alexandria VA.

6.3 Guidance and documentation pertinent to the data acquisition calibration computer programs is contained in "Computer Program for the Alaskan Long Period Array, Volumes I and II".

6.4 The contractor is required to follow all government regulations pertaining to the upkeep and accounting of all government furnished property.

6.5 Historical information in the form of past monthly reports, special reports and final reports may be made available at the contractors request.

7.0 Maintaining Records and Preparing Reports, Data and Other Deliverables.

7.1 The contractor shall be required to keep records on component failures, erosion control, remote site visits and other items as may be specified by the AFTAC Project Officer.

7.2 Upon approval of a system change the contractor shall be required to update all ALPA specifications and manuals to reflect current operational procedures and parameters.

7.3 Reports and data to be provided to the government are listed on the Contract Data Requirements List (DD Form 1423) for this project. The contractor shall assure that technical reports, manuals, handbooks, drawings, specifications, or other data required by this contract are prepared and delivered in accordance with contractual requirements. This includes assuring conformance to requirements for style, format, legibility, technical coverage, content, accuracy, adequacy, and delivery.

APPENDIX 2 to TECHNICAL REPORT NO. 76-12

HARDWARE MODIFICATION
REPLACE DEVELOCORDER OSCILLOSCOPES

MEMORANDUM

TELEDYNE GEOTECH

22 September 1975

TO: V. F. Johnson, ALPA MEMO HM-5001

FROM: M. G. Gudzin, Garland MGG

SUBJECT: Hardware Modification - Replace Develocorder Oscilloscopes

PURPOSE: Replace Deteriorated, Obsolete Oscilloscopes with New Units

UNITS AFFECTED: Both Develocorders at ALPA

INTRODUCTION

The two Oscilloscopes, Tektronix Model 502, used in the ALPA Develocorders have been operated continuously, except during maintenance, for nearly five years. All components have aged, and switches and tube sockets have become corroded and noisy from exposure to photographic chemical fumes. Major repairs to these units have become impractical because Tektronix has discontinued manufacture of this oscilloscope and no longer furnishes replacement parts. The following paragraphs contain detailed instructions for replacing the Tektronix 502 oscilloscopes with Hewlett Packard 1221A oscilloscopes.

1. Remove panels as shown in photo 1. Measure distance from lens to face of CRT and record.

2. Remove 502 CRT including tube shield and all hardware used in the initial 502 installation.

3. Photo 2 is an illustrated parts breakdown of the CRT assembly. Insert the fixed retainer tube (with captive upper retainer ring) from the top into the 4-13/16-inch hole in the base plate of the Develocorder until the top retainer ring rests upon the base plate of the Develocorder.

4. Slide the thrust ring and the lower retainer ring onto the lower end of the fixed retainer tube and push both rings up against the bottom of the table top.

5. Tighten the lower clamp ring to secure it to the retainer tube.

6. Run up tension screws against the thrust ring only tight enough to hold the assembly in place - then lock screws.

7. Slide the inner positioning sleeve (with CRT and shield attached) into the fixed retainer tube and adjust for the same height as measured in paragraph 1.

NOTE: This will be a rough adjustment. The final setting probably will have to be made by trial and error.

8. Remove rear extension panel of the EMCOR base cabinet and replace with door No. D021D LM (supplied as part of modification kit).

9. Remove Tektronix 502 oscilloscope and reposition shelf to best advantage for HP 1221A oscilloscope.

10. Install BNC plug on input cable.

11. Make all necessary plug-in connections and replace panels.

12. Complete final adjustments on optics and signals.

NOTE: The maximum vertical deflection on the new (HP) CRT is considerably less than the maximum horizontal deflection. If the vertical channel deflection is too small to properly scan the Develocorder film it is suggested that signals to be recorded be introduced into the horizontal input jack, and the CRT be oriented so that the "horizontal" deflection scans across the Develocorder film.

dn
Attachments

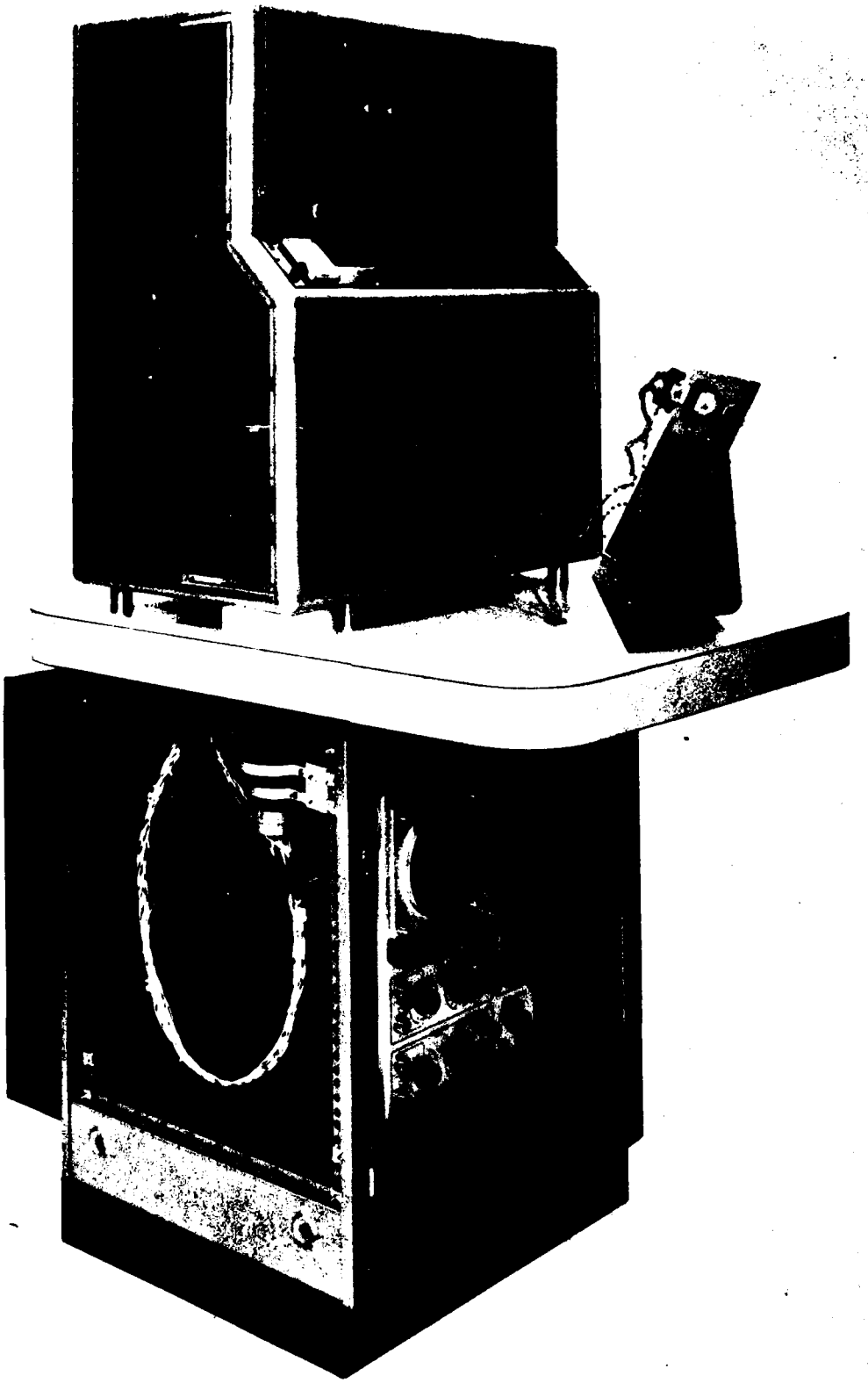

Photo 1. Develocorder with Tektronix oscilloscope

G 8285

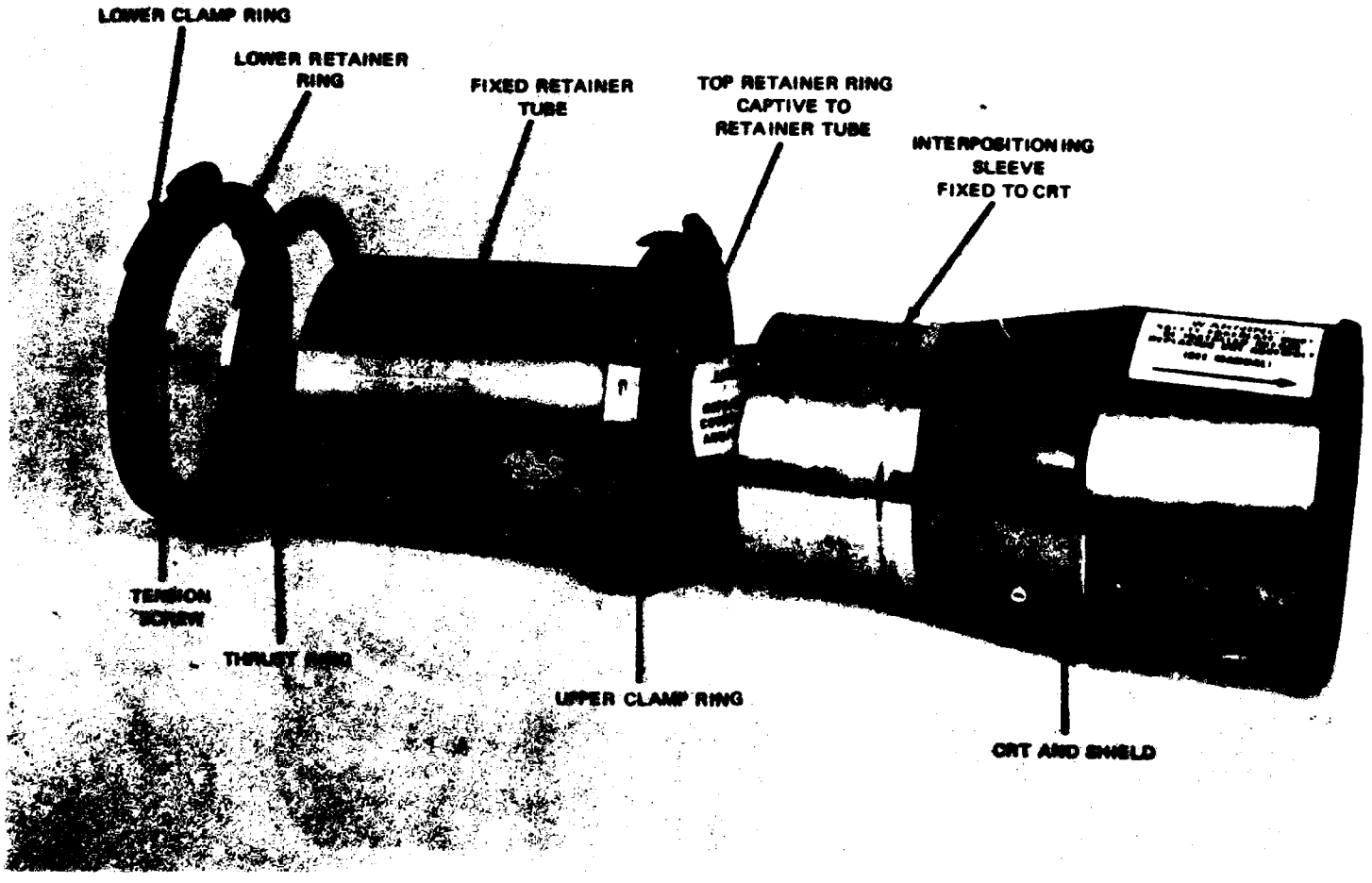

Photo 2. Illustrated parts breakdown of the CRT assembly

G 8286

APPENDIX 3 to TECHNICAL REPORT NO. 76-12

SPECIAL TESTS

SPECIAL TESTS

1. At the request of the Project Officer, a special operational test was conducted from 29 July to 1 August (75-210-2000Z) to (75-213-2330Z). During this time, a 20-micron, 25-second calibration signal was impressed upon all three calibration coils of the seismometer at site 323. The signal consisted of seven sinusoidal cycles, a pause, then seven more sinusoidal cycles, a pause, repeated in this pattern throughout the operating time period. The flag bit was set to indicate abnormal operation.

No supervisory functions were performed during the test, field maintenance work was suspended, and teletype logs were suppressed.

2. At the request of the Project Officer, special operational tests were conducted from 1900 to 2100Z on 248-75, and from 1800 to 2100Z on 251-75 through 255-75. During these times a 20-micron, 25-second calibration signal was impressed upon all three calibration coils of the seismometer at site 323. The signal consisted of seven sinusoidal cycles, a pause, then seven more sinusoidal cycles, a pause, repeated in this pattern throughout the operating time period. The flag bit was set to indicate abnormal operation.

No supervisory functions were performed during the test, field maintenance work was suspended, and teletype logs were suppressed.

3. At the request of the Project Officer, the following two changes were made in array operation to provide data for special tests in Alexandria.

a. On 281-75, at 1932Z only, a 2.0 micron daily calibration (DCF) was performed with the flag removed.

b. On 281-75, from 1816Z to 1917Z, a 100-second square wave, very low amplitude voltage was applied to the analog multiplexer for site 312.

4. At the request of the Project Officer, the following changes were made in ALPA operations to provide data for tests in Alexandria.

a. Each weekday from 75-315 through 75-323 and from 75-330 through 75-332, the following signals were applied to all three site 312 channels:

Time - ZULU	Signal
1830 to 1845	Low level step function, 120 sec on, 30 sec off, repeated
1845 to 1945	Low level square wave, 60 sec period
1945 to 2045	High level square wave, 60 sec period
2045 to 2100	Low level step function, 120 sec on, 30 sec off repeated
2100 to 1830	High level sine wave, 40 sec period

b. On 75-324, 325, 328, and 329, a 60 second square wave signal applied to all three site 312 channels for a period of two hours each day. The square wave amplitude was changed every 10 minutes, alternately high and low levels.

5. At the request of the Project Officer, the following signals were applied to all three site 312 channels to provide data for tests in Alexandria:

Day	Time - ZULU	Signal
75-351	2000-2059	Low and high level, 60 sec square waves, amplitude changed every 10 minutes.
75-351 75-352	2059- 1847	High level sine wave, 40 sec period
75-352	1847-1852	High level square wave, 60 sec period
75-352	1852-1902	Low level square wave, 60 sec period
75-352	1902-2012	Low level step function, 120 sec on, 30 sec off, repeated

6. At the request of the Project Officer, special data transmissions were made on all three channels for site 312. A 0.04 Hz sine wave was transmitted from 8 April to 21 April at an amplitude equivalent to 75 mμ of ground motion and from 21 April to 30 April at an amplitude equivalent to 20 μ of ground motion.

APPENDIX 4 to TECHNICAL REPORT NO. 76-12

CORRESPONDENCE PERTINENT TO DISPOSITION OF GOVERNMENT CONTRACT PROPERTIES

STANDARD FORM 30, JULY 1966
GENERAL SERVICES ADMINISTRATION
FPR PROC REG (41 CFR) 1-16.101

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

PAGE 1 OF 1

1 AMENDMENT/MODIFICATION NO	2 EFFECTIVE DATE	3 REQUISITION/PURCHASE REQUEST NO.	4 PROJECT NO (If applicable)
A00001	76 Jul 30		VT/6707

5. ISSUED BY — CODE S4402A

DCASD Dallas
500 South Ervay Street
Dallas, TX 75201

6 ADMINISTERED BY (If other than block 5) — CODE

7. CONTRACTOR NAME AND ADDRESS — CODE 99019 — FACILITY CODE

(Street, city, county, state, and ZIP Code)

Teledyne Industries, Inc.
Geotech Division
3401 Shiloh Road
Garland, TX 75040
MAIL TO: P. O. Box 28277
Dallas, TX 75228

AUG 2 1976
64890

8.
☐ AMENDMENT OF SOLICITATION NO. _____
DATED _____ (See block 9)
☒ MODIFICATION OF CONTRACT/ORDER NO F08606-76-C-0006
DATED 75 Jul 01 (See block 11)

9. THIS BLOCK APPLIES ONLY TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in block 12. The hour and date specified for receipt of Offers ☐ is extended, ☐ is not extended.

Offerors must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation, or as amended, by one of the following methods:

(a) By signing and returning ___ copies of this amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE ISSUING OFFICE PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If, by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided such telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

10. ACCOUNTING AND APPROPRIATION DATA (If required)

N/A

11. THIS BLOCK APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS

(a) ☐ This Change Order is issued pursuant to _____
The Changes set forth in block 12 are made to the above numbered contract/order.

(b) ☐ The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in block 12.

(c) ☒ This Supplemental Agreement is entered into pursuant to authority of the basic contract.
It modifies the above numbered contract as set forth in block 12.

12. DESCRIPTION OF AMENDMENT/MODIFICATION

1. The ALPA Project (VT/6707), contract F08606-76-C-0006, will cease to exist on 30 Sep 76. All further reconfiguration operations of the ALPA will be handled under Project T/4107, contract F08606-74-C-0045.

2. Attachment 1 is a listing of major equipment items furnished as GFP on Project VT/6707. Attachment 2 is a complete listing of minor equipment items furnished as GFP on Project VT/6707.

3. On or before 30 Sep 76, all ALPA GFP (Attachments 1 and 2) that will be used in the remaining reconfiguration operations and all GFP that will be used in the future array operations will be transferred from Contract F08606-76-C-0006 to Contract F08606-74-C-0045.

DUPLICATE ORIGINAL

4. A copy of this modification will be filed in each contract in order to reflect accountability transfer.

5. The contract price is not changed as a result of this modification.

2 AFTAC/TG

DISTRIBUTION: 1 DCRT-F, 1 Contractor, 5 DCRT-DDCO, 10 Partick AFB, FL/TMRB, 2 AFTAC/VSC

Except as provided herein, all terms and conditions of the document referenced in block 8, as heretofore changed, remain unchanged and in full force and effect.

13
☐ CONTRACTOR/OFFEROR IS NOT REQUIRED TO SIGN THIS DOCUMENT
☒ CONTRACTOR/OFFEROR IS REQUIRED TO SIGN THIS DOCUMENT AND RETURN 1 COPIES TO ISSUING OFFICE

14 NAME OF CONTRACTOR/OFFEROR
BY J. P. Schinard
(Signature of person authorized to sign)

17. UNITED STATES OF AMERICA
BY Rachel H. Loisel
(Signature of Contracting Officer)

15. NAME OF TITLE OF SIGNER (Type of print)	16. DATE SIGNED	18. NAME OF CONTRACTING OFFICER (Type or print)	19. DATE SIGNED
VICE PRESIDENT	AUG 13 1976	RACHEL H. LOISEL Administrative Contracting Officer	76 Sep 02

30-101

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	TYPE	S C	T MOD	FSC	LOC	U IN	COST	QUAN
62039	ADAPTER BALL-JOINT	K AND E	800040	NA	USAF -	60045	C-0006-6	D	P	68	0872	CA	M	24	2
62731	ADAPTER PWR SUP RACK	LAMBDA	LAR-3	NONE	99999-0001166	60045	C-0006-6	D	F	73	6625	CA	M	35	1
62940	ATTENUATOR	KAY	320	A5833	USAF -	60045	C-0006-6	D	F	70	0872	CA	M	25	1
62961	ATTENUATOR DB	MICRONOW	AA-40N	5586	USAF -	60045	C-0006-6	D	F	70	0872	CA	M	25	1
61912	BENCH WORK	LYON	METAL	NONE	USAF -	60045	C-0006-6	D	F	69	7195	CA	M	320	2
61916	BOOKCASE	STEELCASE	2090-310	NONE	00273-0000272	60045	C-0006-6	D	F	69	7110	CA	M	116	1
61892	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000187	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61894	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000189	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61895	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000190	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61896	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000191	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61701	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000196	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61702	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000197	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61703	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000198	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
61704	BUILDING PORTABLE	ARMCO	SHED TYPE	NA	00273-0000199	60045	C-0006-6	D	P	69	5410	CA	O	1,117	1
62789	BUILDING PORTABLE	ADKINS	542020	NONE	00129-0000002	60045	C-0006-6	D	P	76	5410	CA	O	3,201	1
61894	BUILDING PREFABICTD.	STRAN STEEL	36' X 60'	NONE	0273-0000371	60045	C-0006-6	D	F	69	5410	CA	O	91,556	1
62961	CABINET FILE	STEELCASE	UNK	NONE	USAF -	60045	C-0006-6	D	F	69	0872	CA	M	74	1
62951	CALCULATOR DESK	SUMMITY	51219	NA	USAF -	60045	C-0006-6	D	F	76	6625	CA	M	88	1
62947	CART SCOPE-MOBILE	TEKTRONIX	200-2	NA	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	85	1
62950	CHAIR	STEELCASE	SIDE	2335865663	USAF -	60045	C-0006-6	D	F	69	0872	CA	M	82	2
62952	CHAIR, EXECUTIVE	STEELCASE	7-238-310	NONE	USAF -00-	60045	C-0006-6	D	P	72	0872	CA	M	300	2
62956	COMPASS MAGNETIC	K AND E	800020	NA	USAF -	60045	C-0006-6	D	P	68	0872	CA	M	110	2
62925	CONDITIONER AIR	SEARS	W47K70984	E03978170	0036-0000004	60045	C-0006-6	D	P	71	4120	CA	O	399	1
63087	COPIER	SAVIN	215	326852	0014-0000008	60045	C-0006-6	D	P	75	7400	CA	O	1,087	1
62956	DECADE CAPACITOR	AEROVOX	ACD-23	NONE	USAF -	60045	C-0006-6	D	F	70	0872	CA	M	30	1
61309	DESK	STEELCASE	EXECUTIVE	560300316	00273-0000265	60045	C-0006-6	D	F	69	7110	CA	O	221	1
62958	DRILL, 1/2 IN.	SKILL	542	NONE	USAF -	60045	C-0006-6	D	F	71	0872	CA	M	30	1
62959	DRILL, 1/4 IN.	SKILL	503	NONE	USAF -	60045	C-0006-6	D	F	71	0872	CA	M	15	1
62960	DYNAMOMETER	DILLON	Z-N	62853	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	180	1
63135	ENCLOSURE ELECTRONIC	HOFFMAN	A88H36C	NONE	USAF -	60045	C-0006-6	D	F	73	0873	CA	M	150	1
62962	EXTINGUISHER FIRE	GENERAL	CP65A	NONE	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	65	5
62963	EXTINGUISHER FIRE	NORRIS IND	P15COV	NONE	-	60045	C-0006-6	D	P	73		CA	M	180	2
62964	EXTINGUISHER FIRE	GENERAL	TG5-20A	NONE	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	105	3
62966	FIXTURE ERECTION	ROHN	UNK	EF6-45	USAF -	60045	C-0006-6	D	F	69	0872	CA	M	38	1
63092	GENERATOR FUNCTION	WAVETEK	1118	105405	60000-0000019	60045	C-0006-6	R	P	75	6625	CA	O	795	1
62966	GRINDER BENCH	BLACK DECKER	4315	32502115	USAF -	60045	C-0006-6	D	P	73	0376	CA	M	118	1
61909	HEATER	MASTER	B-99-D	7249687	0273-0000330	60045	C-0006-6	D	F	70	6625	CA	M	199	1
62967	INDICATOR	MINE SAFETY	2A	19781	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	105	1
62968	LADDER ALUMINUM	PATENT SCAFF.	6 FT.	NONE	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	23	1
62749	METER AM	DATA PRECISN	245	6657	0004-0000006	60045	C-0006-6	D	P	73	6625	CA	O	295	1
63067	METER FDM	SIMPSON	250-6P	NA	USAF -	60045	C-0006-6	D	P	75	6625	CA	M	104	1
62935	METER FDM	TRIPLETT	310C	NA	USAF -	60045	C-0006-6	D	P	76	6625	CA	M	82	1
62970	METER FDM	TRIPLETT	310C	NONE	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	68	1
61973	METER WATT	BIRD	43	J8435	0273-0000051	60045	C-0006-6	D	P	69	6625	CA	M	95	1
62764	METER-MULTI DIGITAL	DATA PRECISION	245	3338	0004-0000009	60045	C-0006-6	D	P	73	6625	CA	O	295	1
61288	OSCILLOSCOPE PORTABLE	TEKTRONIX	422/1458	E0410	D9527B084	60045	C-0006-6	D	P	69	6625	CA	I	1,800	1
61286	OSCILLOSCOPE PORTABLE	TEKTRONIX	422/1458	20547	D9527B084	60045	C-0006-6	D	P	69	6625	CA	I	1,800	1
61819	RADIO BASE STATION	GE, ELECTRIC	MR76LA000	923-0267	00273-0000275	60045	C-0006-6	D	F	69	6625	CA	O	1,090	1
61520	RADIO MOBILE	GEN ELECTRIC	MT76TAG00	923-0265	00273-0000276	60045	C-0006-6	D	F	69	6625	CA	O	935	1
61521	RADIO MOBILE	GEN ELECTRIC	MT76TAG00	923-0266	00273-0000277	60045	C-0006-6	D	F	69	6625	CA	O	935	1
61522	RADIO MOBILE	GEN ELECTRIC	MT76TAG00	923-0268	00273-0000278	60045	C-0006-6	D	F	69	6625	CA	O	935	1

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Property Transferred to Contract F08600-74-C-0045

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	S TYPE	S C	T NOM	T FSC	T LOC	U IN	U COST	U QUAN
03838	RADIO PORTABLE	GE	PORTA MOB	1099044	0016-0000007	60045	C-0006-6	D	P	74	5820	CA	U	900	1
03366	REEL STATIC DISCHARGE	ANETEX	NLE930	NA	USAF -	60045	C-0006-6	D	P	75		CA	M	500	4
02971	RESISTOR RF LOAD	MOTOROLA	T-1013A	341	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	90	1
02973	SAW, CHAIN	HOMELITE	SUPER XL	03192080	USAF -	60045	C-0006-6	D	P	71	0872	CA	M	125	1
02965	SKILLSAW 6-1/2 IN	SKILL	534	NONE	USAF -	60045	C-0006-6	D	P	71	0872	CA	M	30	1
02966	SKILLSAW 7-1/4 IN.	SKILL	574	NONE	USAF -	60045	C-0006-6	D	P	71	0872	CA	M	35	1
02742	STEROMICROSCOPE	AMERICAN OPT.	62T	868878	0004-0000005	60045	C-0006-6	D	P	73	6625	CA	U	220	1
02998	STOOL DRAFTING	STEELCASE	C-182-500	1845005863	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	51	1
02999	STOOL DRAFTING	STEELCASE	C-184-500	1745005863	USAF -	60045	C-0006-6	D	P	69	0872	CA	M	112	2
01683	SUPPLY POWER	LAMBDA	LAM-C-0-36	C96213	0273-0000041	60045	C-0006-6	D	P	69	6625	CA	M	139	1
01684	SUPPLY POWER	LAMBDA	LAM-C-0-36	C96213	0273-0000042	60045	C-0006-6	D	P	69	6625	CA	M	139	1
01685	SUPPLY POWER	LAMBDA	LAM-C-0-36	C96273	0273-0000043	60045	C-0006-6	D	P	69	6625	CA	M	139	1
02200	SYSTEM RADIO TELEMET	TELEDYNE TELE	RA250	517	0273-0000337	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
01527	SYSTEM RADIO TELEMET	TEL-TELEMETRY	RX-250	504	0273-0000081	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01599	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	507	0273-0000325	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01606	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	506	0273-0000326	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01601	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	509	0273-0000327	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01602	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	511	0273-0000328	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01603	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	512	0273-0000329	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01604	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	513	0273-0000330	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01605	SYSTEM RADIO TELEMET	TELEDYNE-TELE	RX-250	514	0273-0000331	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01553	SYSTEM RADIO TELEMET	TELEDYNE TELE	RX-250	503	00273-0000200	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01554	SYSTEM RADIO TELEMET	TELEDYNE TELE	RX-250	508	00273-0000201	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01555	SYSTEM RADIO TELEMET	TELEDYNE TELE	RX-250	505	00273-0000202	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
01556	SYSTEM RADIO TELEMET	TELEDYNE TELE	RX-250	506	00273-0000203	60045	C-0006-6	D	P	69	6625	CA	U	8,000	1
02327	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	501	0273-0000335	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02319	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	510	0273-0000340	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02317	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	516	0273-0000341	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02318	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	518	0273-0000342	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02319	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	519	0273-0000343	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02320	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	517	0273-0000344	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02321	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	520	0273-0000345	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02322	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	521	0273-0000346	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02323	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	522	0273-0000347	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02324	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	523	0273-0000348	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
02325	SYSTEM RADIO TELEMTRY	TELEDYNE TELE	RX-250	524	0273-0000349	60045	C-0006-6	D	P	70	6625	CA	U	8,000	1
01625	SYSTEM W/TOWER/10 ANT	ROHN	50 FT	NONE	00273-0000282	60045	C-0006-6	D	P	69	5820	CA	U	823	1
01630	SYSTEM W/TOWER/2 ANT	ROHN	30 FT	NONE	00273-0000284	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01629	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000285	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01630	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000286	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01631	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000287	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01633	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000289	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01634	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000290	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01635	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000291	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01636	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000292	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01637	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000293	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01638	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000294	60045	C-0006-6	D	P	69	6625	CA	U	841	1
01639	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000295	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01641	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000297	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01642	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000298	60045	C-0006-6	D	P	69	6625	CA	U	516	1
01643	SYSTEM W/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000299	60045	C-0006-6	D	P	69	6625	CA	U	516	1

Property transferred to Contract F08606-74-C-0045

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	TYPE	S C	Y R	MOD	FSC	LOC	O IN	COST	QUAN
41844	SYSTEM #/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000300	60045	C-0006-6	D	F	69		6625	CA	O	$ 516	1
41846	SYSTEM #/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000301	60045	C-0006-6	D	F	69		6625	CA	O	$ 516	1
41848	SYSTEM #/TOWER/3 ANT	ROHN	30 FT	NONE	00273-0000302	60045	C-0006-6	D	F	69		6625	CA	O	$ 516	1
41828	SYSTEM #/TOWER/3 ANT	ROHN	50 FT	NONE	00273-0000284	60045	C-0006-6	D	F	69		6625	CA	O	$ 516	1
41832	SYSTEM #/TOWER/4 ANT	ROHN	30 FT	NONE	00273-0000288	60045	C-0006-6	D	F	69		6625	CA	O	$ 841	1
41827	SYSTEM #/TOWER/4 ANT	ROHN	60 FT	NONE	00273-0000283	60046	C-0006-6	D	F	69		6625	CA	O	$ 516	1
43000	TABLE	VIRTUE BROS	DINING	NONE	USAF -	60045	C-0006-6	D	F	69		0878	CA	M	$ 60	1
43136	TABLE	STEELCASE	REFERENCE	NA	USAF -	60045	C-0006-6	D	F	69		7110	CA	M	$ 174	1
43004	THERMOMETER	TAYLOR	2354	NONE	USAF -	60045	C-0006-6	D	P	73		6625	CA	M	$ 88	1
42562	TRAILER TILT DECK	BIRMINGHAM	STKT B300	610	99999-0001042	60046	C-0006-6	D	P	72		6625	CA	O	$ 950	1
43024	TRIPOD ALUMINUM SPUNT	K AND E	000055	NA	USAF -	60045	C-0006-6	D	P	68		0878	CA	M	$ 44	2
43089	TYPEWRITER PORT ELEC	SMITH CORONA	12	0EL5249735	60006-0000018	60045	C-0006-6	D	P	75		7400	CA	O	$ 206	1
42329	UNIT PROM FUEL PUMP	BLACKHEN	L6F-1P19	464686	0273-0000359	60045	C-0006-6	D	P	70		6625	CA	O	$ 403	1
42733	UNIT WELDING ACELL	VICTOR	315	J861996	99999-0001168	60046	C-0006-6	D	P	71		6625	CA	M	$ 150	1
43132	VACUUM CLEANER	BLACK-DECKER	6615	210851	USAF -	60045	C-0006-6	C	P	76			CA	O	$ 269	1
42340	VEHICLE TRACKED	THIOKOL	NONE	60C2078	99999-0001000	60046	C-0006-6	D	F	70		6620	CA	O	$ 6,000	1
43025	VISE	ERIE	43 1/2	NONE	USAF -	60045	C-0006-6	D	F	71		0878	CA	M	$ 25	1
42552	WELDER ARC	S LINCOLN ELECT	DC600S	A-452449	99999-0001038	60045	C-0006-6	D	P	71		5210	CA	O	$ 500	1

TOTAL OTHER	$	275,721
TOTAL MINOR	$	6,696
TOTAL DIPEC	$	3,600
TOTAL	$	284,017

NO OTHER ITEMS	73
NO MINOR ITEMS	62
NO DIPEC ITEMS	2
TOTAL ITEMS	137

MINOR EQUIPMENT ITEMS

GOVERNMENT CONTRACT PROPERTIES

04-27-76 INV

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	TYPE	SC	HOW	T AI	FSC	LOC	U IM	COST	QUA
7154	ADAPTER SOCKET 3/8X1/4	SEARS	42566	UNK	USAF	60006	UNKI	U	F	73	0873	CA	M	S		2
5311	ATTACHMENT HOLE SAW	SEARS	25790	57-0425790	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
7125	ATTACHMENT HOLE SAW	SEARS	25781	57-0425781	USAF	60006	UNKI	U	F	71	0873	CA	M	S	1	1
7127	ATTACHMENT HOLE SAW	SEARS	25782	57-0425782	USAF	60006	UNKI	U	F	71	0873	CA	M	S	1	1
7129	ATTACHMENT HOLE SAW	SEARS	25783	57-0425783	USAF	60006	UNKI	U	F	71	0873	CA	M	S	1	1
5315	ATTACHMENT HOLE SAW	SEARS	25784	57-0425784	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
5316	ATTACHMENT HOLE SAW	SEARS	25786	57-0425786	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
5317	ATTACHMENT HOLE SAW	SEARS	25787	57-0425787	USAF	60006	UNKI	U	F	71	0872	CA	M	S	4	2
5318	ATTACHMENT HOLE SAW	SEARS	25788	57-0425788	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
5319	ATTACHMENT HOLE SAW	SEARS	25789	57-0425789	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
7127	BAR SLIDING 5 IN	SEARS	UNK	UNK	USAF	60006	UNKI	U	F	71	0873	CA	M	S	4	2
5275	BAR, EXTENSION 6 IN	SEARS	43531	57-1903531	USAF	60006	UNKI	U	F	71	0872	CA	M	S	2	1
5277	BAR, EXTENSION 6 IN	SEARS	44131	57-1904131	USAF	60006	UNKI	U	F	71	0872	CA	M	S	2	1
5276	BAR, EXTENSION, 3 IN.	SEARS	44260	57-1904260	USAF	60006	UNKI	U	F	71	0872	CA	M	S	8	2
5279	BAR, SLIDING 3 IN.	SEARS	UNK	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	8	2
5283	BAR, SLIDING 6 IN.	SEARS	UNK	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	4	2
6042	CARVER, PORTABLE	CECO	CGT-27-69	NONE	USAF	60006	22372	U	P	72	0872	CA	M	S	20	1
5557	CHISEL, COLD	SEARS	42373	57-1902373	USAF	60006	UNKI	U	F	71	0872	CA	M	S	4	2
5339	CHISEL, SET COLD	ARMSTRONG	3400	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	5	1
5331	DISPENSER HAND CLEAN	GO-JO	NONE	A-88564	USAF	60006	UNKI	U	F	71	0872	CA	M	S	1	1
5119	FILE BASTARD 8 FLAT	SEARS	9A31250	NA	USAF	60006	56770	R	P	69	0872	CA	M	S	4	2
5359	FILE MILLER 12 IN.	UNK	UNK	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	4	2
5311	GUN GREASE	MURALT	WHB	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	24	2
5257	GUN HEAT	DAYTON ELECT.	2Z045	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	19	1
5335	GUN SOLDERING	WELLER	D-440	44-1160440	USAF	60006	UNKI	U	F	71	0872	CA	M	S	2	1
5332	GUN SUCTION	LINCOLN	NONE	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	6	1
5313	GUN, CAULKING	MACKLANBURG	CG-5	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	3	1
5325	GUN, POP RIVET	YACO	493	57-9900493	USAF	60006	UNKI	U	F	71	0872	CA	M	S	15	1
5323	HACKSAW	SEARS	3562	57-0903562	USAF	60006	UNKI	U	F	71	0872	CA	M	S	3	1
5329	HAMMER, BALLPEAN	KLEIN	E06	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	3	1
5333	HAMMER, CHIPPING	ANTHONY	TYPE B	NONE	USAF	60006	UNKI	R	F	71	0872	CA	M	S	1	1
5311	HAMMER, CLAW	TRUE TEMPER	G-20P	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	20	2
5265	HANDLE, FLEX T 10 IN	SEARS	44363	57-1904363	USAF	60006	UNKI	U	F	71	0872	CA	M	S	36	2
5305	HANDLE, FLEX T 15 IN	SEARS	44201	57-1904261	USAF	60006	UNKI	U	F	71	0872	CA	M	S	40	2
5304	HANDLE, FLEX T 8 IN.	SEARS	43523	57-1903523	USAF	60006	UNKI	U	F	71	0872	CA	M	S	28	2
5307	HANDLE, SPEED 1/2 IN	SEARS	4416	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5333	IRON SOLDERING	UNGAR	777	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	18	3
5337	IRON SOLDERING, DC	WELLER	TCP-1C	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	2	1
5337	KIT, SPEED REDUCER	SEARS	25653	57-9925653	USAF	60006	UNKI	U	F	71	0872	CA	M	S	15	1
5339	KIT, TUBE FLARE W/CUTT	SEARS	UNK	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	19	1
5309	LANTERN	THERMAS	8326	NONE	USAF	60006	28168	C	P	70	0872	CA	M	S	13	1
5116	LIGHT TROUBLE	SEARS	3A4592	NA	USAF	60006	56770	R	P	69	0872	CA	M	S	3	1
6059	MIRROR, INSPECTION	GC	5090	57-0905090	USAF	60006	22372	U	P	72	0872	CA	M	S	1	1
7352	PLIERS STRAIGHT TIP	TRUARC	1120	UNK	USAF	60006	UNKI	U	F	73	0873	CA	M	S	2	1
5321	PLIERS, COMBINATION	KRAEUTER	7-6	57-1200076	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5322	PLIERS, DIAGONAL	KRAEUTER	37015	57-1107015	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5324	PLIERS, DUCKBILL	KRAEUTER	38515	57-1206315	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5325	PLIERS, LONGNOSE	KRAEUTER	20160	57-1232016	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5326	PLIERS, LONGNOSE	XCELITE	56CO	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	3	1
5328	PLIERS, PUMP	XCELITE	42H	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2
5327	PLIERS, PUMP	KLEIN	D-502	NONE	USAF	60006	UNKI	U	F	71	0872	CA	M	S	12	2

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	TYPE	SC	MOD	RD	FSC	LOC	UM	COST	QTY
5930	PLIERS, VISE GRIP	GREAT NECK	E10-C	57-1200010	USAF	60006	USAF	U	F	71	0872	CA		M	S	4
5923	PLIERS,DIAGONAL	XCELITE	7+C0	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	3
5836	PUMP GASOLINE	MCDONALD	883	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	11
5931	PUNCH, CENTER	SEARS	43051	57-1502361	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5933	PUNCH, HOLE 1-1/4 IN.	GREENLEE	AV128	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	1
5934	PUNCH, HOLE 2-1/2 IN.	GREENLEE	500-4233	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	1
5935	PUNCH, PIN	SEARS	42832	57-1502832	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5114	SAW HAND	SEARS	9943617C	NA	USAF	60006	55770	R	P	69	0872	CA		M	S	7
5868	SAW, JIG 2SPEED	SKILL	514	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	100
7055	SCREWDRIVER PHILLIPS	SEARS	41295	NONE	USAF	60006	UNKN	U	F	73	0873	CA		M	S	4
7053	SCREWDRIVER SLOT	SEARS	41481	57-2001431	USAF	60006	UNKN	U	F	73	0873	CA		M	S	4
5937	SCREWDRIVER, OFFSET	STANLEY	671	57-2000671	USAF	60006	UNKN	U	F	71	0872	CA		M	S	2
5940	SCREWDRIVER, OFFSET	VACO	90-2	57-2000020	USAF	60006	UNKN	U	F	71	0872	CA		M	S	2
5942	SCREWDRIVER, PHILLIPS	XCELITE	X102	57-2000102	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5943	SCREWDRIVER, PHILLIPS	XCELITE	X103	57-2000103	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5944	SCREWDRIVER, PHILLIPS	XCELITE	X105	57-2000105	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5946	SCREWDRIVER, SLOT	SEARS	41484	57-2001484	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5947	SCREWDRIVER, SLOT	XCELITE	R-100	57-2000100	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5948	SCREWDRIVER, SLOT	XCELITE	R-31610	57-2003161	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5949	SCREWDRIVER, SLOT SET	ARMSTRONG	3060	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	2
5950	SCREWDRIVER, SLOT SET	XCELITE	PS-88	60-8000088	USAF	60006	UNKN	U	F	71	0872	CA		M	S	2
5973	SET ALLEN WRENCH	XCELITE	PS-40	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5881	SET BRISTOL WRENCH	GC	5070	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	1
5882	SET BRISTOL WRENCH	XCELITE	PS-40	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	2
6063	SET DRILL BIT	HUOT	15	60-8000015	USAF	60006	22372	U	P	72	0872	CA		M	S	6
5893	SET DRILL BIT	CLEVELAND-TO	59	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	6
5894	SET DRILL BIT	H.L. HANSON	S-17	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	6
5896	SET SCREW EXTRACTING	ACE	5332	60-8000033	USAF	60006	UNKN	U	F	71	0872	CA		M	S	12
6054	SET, IGNITION	SEARS	43441	60-8003441	USAF	60006	22372	U	P	72	0872	CA		M	S	40
5935	SET, PIN PUNCH	SEARS	42873	60-8002873	USAF	60006	UNKN	U	F	71	0872	CA		M	S	3
6065	SET, PIN PUNCH	STARRETT	5866	NONE	USAF	60006	22372	U	P	72	0872	CA		M	S	3
6056	SET, TAP AND DIE	H.L. HANSON	614V	60-8006140	USAF	60006	22372	U	P	72	0872	CA		M	S	6
5998	SET, TREEZER	WALSCO	575	60-8000575	USAF	60006	UNKN	U	F	71	0872	CA		M	S	5
5111	SHOVEL ROUND PT.	SEARS	99432958L	NA	USAF	60006	55770	R	P	69	0872	CA		M	S	6
5112	SHOVEL SQUARE	SEARS	99432258L	NA	USAF	60006	55770	R	P	69	0872	CA		M	S	24
5931	SHOVEL, SNO	UNK	UNK	NONE	USAF	60006	UNKN	U	F	71	0872	CA		M	S	10
7057	SOCKET STANDARD	SEARS	43499	57-1903499	USAF	60006	UNKN	U	F	73	0873	CA		M	S	4
5970	SOCKET, DEEP,12 POINT	SEARS	47523	57-1907523	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5971	SOCKET, DEEP,12 POINT	SEARS	47525	57-1907525	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5972	SOCKET, DEEP,12 POINT	SEARS	47528	57-1907528	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5969	SOCKET, SPARK PLUG	SEARS	43321	57-1903321	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5952	SOCKET, STANDARD	SEARS	43491	57-1903491	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5953	SOCKET, STANDARD	SEARS	43492	57-1903492	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5954	SOCKET, STANDARD	SEARS	43493	57-1903493	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5955	SOCKET, STANDARD	SEARS	43494	57-1903494	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5956	SOCKET, STANDARD	SEARS	43495	57-1903495	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5957	SOCKET, STANDARD	SEARS	43496	57-1903496	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5958	SOCKET, STANDARD	SEARS	43497	57-1903497	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5959	SOCKET, STANDARD	SEARS	43498	57-1903498	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4
5960	SOCKET, STANDARD	SEARS	44331	57-1904331	USAF	60006	UNKN	U	F	71	0872	CA		M	S	8
5963	SOCKET, STANDARD	SEARS	44332	57-1904332	USAF	60006	UNKN	U	F	71	0872	CA		M	S	4

STD NO.	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	GOVERNMENT ID	CONTRACT	ACQUISITION REFERENCE	TYPE	S C	T HOW	RI	FSC	LOC	O IM	COST	QUAN
5864	SOCKET, STANDARD	SEARS	44333	57-1904333	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	4	2
5865	SOCKET, STANDARD	SEARS	44334	57-1904334	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	4	2
5866	SOCKET, STANDARD	SEARS	44335	57-1904335	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5867	SOCKET, STANDARD	SEARS	44336	57-1904336	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5868	SOCKET, STANDARD	SEARS	44337	57-1904337	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5873	SOCKET, STANDARD	SEARS	47501	90-1907501	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5874	SOCKET, STANDARD	SEARS	47502	57-1907502	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5875	SOCKET, STANDARD	SEARS	47503	57-1907503	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5876	SOCKET, STANDARD	SEARS	47505	57-1907505	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5877	SOCKET, STANDARD	SEARS	47507	57-1907507	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5878	SOCKET, STANDARD	SEARS	47508	57-1907508	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5879	SOCKET, STANDARD	SEARS	47512	57-1907512	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5880	SOCKET, STANDARD	SEARS	47513	57-1907513	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5881	SOCKET, STANDARD	SEARS	47514	57-1907514	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5882	SOCKET, STANDARD	SEARS	47515	57-1907515	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5883	SOCKET, STANDARD	SEARS	47516	57-1907516	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5884	SOCKET, STANDARD	SEARS	47517	57-1907517	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5885	STAND DRILL	SEARS	25936	49-4005986	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	6	1
5898	STRIPPERS, WIRE	VACO	WS150	57-0700150	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	5	1
5992	TAPE 100 FOOT	MILLER FALLS	3100	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	5	1
5991	TAPE, 10 FOOT	STANLEY	PL316	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
5872	TOOL ALIGNMENT	AMPEX	CRR1007KR	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	2	1
5886	TOOL CABLE TIE	PANDUIT	GSC9	57-9900002	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	44	2
5892	TOOL DESOLDERING	EDSYN	SOLDAPULLT	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	12	1
5357	TOOL EXTRACTION	ELCO	05-1877-02	NONE	UNK	-	60006	57665	R	P	69	0872	CA	M	S	16	2
7059	TOOL EXTRACTION	ELCO	05-1877-04	NONE	USAF	-	60006	57665	R	P	69	0873	CA	M	S	4	1
5889	TOOL HAND UNWRAPPING	GARDNER-DENVR	505084	NONE	NONE	-	60006	55691	R	P	69	0872	CA	M	S	5	1
5891	TOOL INSERTION	ELCO	05-1702-04	NA	NA	-	60006	55725	R	P	69	0872	CA	M	S	3	1
7015	TOOL SCREWCH	GEOTECH	33559	NONE	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	20	2
6078	TOOL, CRIMPING	ELCO	05-7516-01	57-9907516	USAF	-	60006	22372	U	P	72	0872	CA	M	S	20	2
6073	TOOL, CRIMPING	AMP	45760-2	UNK	USAF	-	60006	22372	U	P	72	0872	CA	M	S	5	1
6074	TOOL, CRIMPING	AMP	47063	UNK	USAF	-	60006	22372	U	P	72	0872	CA	M	S	5	1
6075	TOOL, CRIMPING	AMP	46698	UNK	USAF	-	60006	22372	U	P	72	0872	CA	M	S	5	1
6077	TOOL, CRIMPING	T AND BETTS	WT103M	57-0130995	USAF	-	60006	22372	U	P	72	0872	CA	M	S	5	1
6079	TOOL, KEYING	ELCO	05-1989-06	57-9901989	USAF	-	60006	22372	U	P	72	0872	CA	M	S	1	1
6060	TOOL, NIBBLING	ADEL TOOL	UNK	57-9900670	USAF	-	60006	22372	U	P	72	0872	CA	M	S	4	1
5990	TOOL, WIRE WRAP	GARDNER-DENV	A-20557	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	5	1
5439	WASTEBASKETS	STEELCASE	UNK	316	USAF	-	60006	R4LV9-30-02	L	F	69	0872	CA	M	S	90	3
7061	WATCH STOP	WESTCLOX	UNK	NONE	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	3	1
7065	WRENCH ADJUSTABLE	KLEIN	D-500-8	57-2300108	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	8	2
7064	WRENCH BOX END	SEARS	UNK	UNK	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	2	1
7062	WRENCH COMBINATION	WILLIAMS	1139A	NONE	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	8	2
7063	WRENCH OPEN END	SEARS	44580	57-2204580	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	8	2
5104	WRENCH PIPE 10"	SEARS	9A55671	NA	USAF	-	60006	56768	R	P	69	0872	CA	M	S	12	2
5105	WRENCH PIPE 18"	SEARS	9A55673	NA	USAF	-	60006	56768	R	P	69	0872	CA	M	S	24	2
7064	WRENCH RACHET BOX	SEARS	4366	57-2104366	USAF	-	60006	UNK	U	F	73	0873	CA	M	S	7	1
6002	WRENCH, ADJUSTABLE	KLIEN	D-500-10	57-2300110	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
6000	WRENCH, ADJUSTABLE	KLIEN	D-500-6	57-2300106	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
6007	WRENCH, BOX END	WILLIAMS	7037	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	8	2
6005	WRENCH, BOX END	INDESTRO	914	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	2	1
6006	WRENCH, BOX END	INDESTRO	915	NONE	USAF	-	60006	UNK	U	F	71	0872	CA	M	S	2	1

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0009	BENCH, COMBINATION	WILLIAMS	1159	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0011	BENCH, COMBINATION	WILLIAMS	1163A	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0012	BENCH, COMBINATION	WILLIAMS	1164	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	18	3
0013	BENCH, COMBINATION	WILLIAMS	1165	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	18	3
0014	BENCH, COMBINATION	WILLIAMS	1166	UNK	USAF -	60006	UNK	U	F	71 0872	CA	M	S	18	3
0015	BENCH, COMBINATION	WILLIAMS	1165A	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0016	BENCH, COMBINATION	WILLIAMS	1167	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0017	BENCH, COMBINATION	WILLIAMS	1170	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0018	BENCH, COMBINATION	THORNSEN	2918	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0020	BENCH, OPEN END	THORSEN	3016	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0021	BENCH, OPEN END	THORSEN	3018	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0022	BENCH, OPEN END	THORSEN	3019	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0024	BENCH, OPEN END	THORSEN	3024	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0025	BENCH, OPEN END	THORSEN	3025	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0029	BENCH, OPEN END	THORSEN	3030	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0019	BENCH, OPEN END	SEARS	44372	57-2204572	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0023	BENCH, OPEN END	SEARS	44581	57-2204581	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0026	BENCH, OPEN END	SEARS	44582	57-2204582	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0027	BENCH, OPEN END	SEARS	44584	57-2204564	USAF -	60006	UNK	U	F	71 0872	CA	M	S	8	2
0032	BENCH, OPEN END	DUNLAP	UNK	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	2	1
0031	BENCH, RACHET	SEARS	43785	57-1903785	USAF -	60006	UNK	U	F	71 0872	CA	M	S	20	2
0033	BENCH, RACHET	SEARS	44575	57-1904575	USAF -	60006	UNK	U	F	71 0872	CA	M	S	28	2
0038	BENCH, RACHET	SEARS	UNK	NONE	USAF -	60006	UNK	U	F	71 0872	CA	M	S	4	1
0039	BENCH, RACHET, BOX	SEARS	3458	57-2103458	USAF -	60006	UNK	U	F	71 0872	CA	M	S	7	1

TOTAL OTHER	$	0
TOTAL MINOR	$	1,523
TOTAL DIPEC	$	0
TOTAL	$	1,523
NO OTHER ITEMS		0
NO MINOR ITEMS		275
NO DIPEC ITEMS		0
TOTAL ITEMS		275

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 1035TH TECHNICAL OPERATIONS GROUP (AFSC)
PATRICK AIR FORCE BASE, FLORIDA 32925

REPLY TO ATTN OF: VELA Seismological Center
312 Montgomery Street
Alexandria, VA 22314

2 SEP

SUBJECT: Transfer of Equipment Under Project VT/6707, Alaskan Long Period Array (ALPA), Contract No. F08606-76-C-0006

TO: DCASD/DCRT-DD-CO22/Mr. Henry Wopperer

1. The Alaskan Long Period Array Project (VT/6707), Contract No. F08606-76-C-0006, will terminate on 30 September 1976. By that date, all government owned equipment assigned to the project must be transferred to other organizations or be declared excess.

2. Attachment 1 is a listing of the spare parts that have accumulated on the project over the past eight years. Request the accountability for these spare parts be transferred to FB4300 and shipped to Building 628, McClellan AFB CA 95652. Attachments 2 and 3 are listings of equipment presently carried on the ALPA project, for which accountability should also be transferred to FB4300 and shipped to the same address. The equipment on Attachment 3 should be transferred separate from that on Attachment 2. Attachment 4 is a listing of equipment which should be transferred to the Montana Large Aperture Seismic Array, Contract No. F08606-76-C-0005, 214 N. 30th Street, Billings MT 59101.

3. The Teledyne Geotech point of contact in the Fairbanks AK area for the transfer of this equipment is Mr. Bill Lee. He can be contacted through Capt Tony Perez, Det 460, APO Seattle 98737 (Telephone: 317-377-2180). The point of contact at McClellan AFB CA for the transfer of this equipment is Sgt Ritchie, LGSE (Telephone: AV 633-3448). The point of contact at the LASA is Mr. Bob Matkins (Telephone: 406-245-6332).

4. The physical transfer of equipment on Attachments 2 and 3, and the spare parts on Attachment 1, will be handled through the Eielson AFB AK Transportation Movement Office by Det 460 personnel.

5. Costs associated with shipping the equipment to the LASA are chargeable to 57T 3400 30T-47Z1 13341C.03 463 S662400.

6. Request that the equipment transfers be expedited so that the action can be completed by 15 September 1976 as storage of

this equipment will become a problem past that date. Should you have any questions concerning the transfer of this equipment, please contact Capt Robert J. Woodward, VELA Seismological Center, 312 Montgomery Street, Alexandria VA 22314 (Telephone AV 221-7577).

FOR THE COMMANDER

RALPH W. ALEWINE, III
Chief, Research Branch

4 Atch
1. Spare Parts Listing
2. Equipment to be transferred to FB4300
3. Equipment to be transferred to FB4300
4. Equipment to be transferred to the Montana LASA

Cy to: Montana LASA, w/Atchs
FB4300, w/Atchs
AFETR/PMR, w/Atchs
Geotech/Mr. Gudzin, w/Atchs
Geotech/Mr. Lee, w/Atchs
Det 460, w/Atchs

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0001	ACTUATOR,MICROSWITCH,W/HARDWARE	JSX 246	3	.40	1.20
0002	ACTUATOR,MICROSWITCH,W/HARDWARE	JX 20	5	.40	2.00
0003	ACTUATOR,MICROSWITCH,W/HARDWARE	JX 25	8	.40	3.20
0004	ACTUATOR,MICROSWITCH,W/HARDWARE	JX 41	11	.40	4.40
0005	ACTUATOR,MICROSWITCH,W/HARDWARE	JX 51	8	.40	3.20
0006	ADAPTER,GROUND 3 TO 2 PIN POWER CORD	419	2	1.00	2.00
0007	AMPLIFIER,OP.,PHIL./NEXUS	1006	3	44.00	132.00
0008	AMPLIFIER,OP.,PHIL/NEXUS	101102	1	44.00	44.00
0009	AMPLIFIER,OP.,DYNAMIC MEASUREMENTS CORP.	FST-152C	4	44.00	176.00
0011	ARMATURE,TELETYPE	184002	1	3.50	3.50
0013	APPLICATOR,FLUID	90-26423-01-01	6	2.53	15.18
0055	BATTERY,18VDC,	100-0001-117	4	133.71	534.84
0060	BEARING,ROLLER,DEVELOCORDER	77R4	2	2.35	4.70
0063	BOOM,QUARTZ,SEISMOMETER	90-31145-01-01	4	125.00	500.00
0064	BRACKET,AEI GAS DIODE	531	16	2.50	40.00
0065	BRIDGE,FULL WAVE	MDA 942-1	1	2.50	2.50
0066	BRUSHES,VACUUM MOTOR	650-213	8	1.10	8.80
0068	BODY MONITOR,SEISMOMETER PHOTOCELL	90-31086-01-01	1	1.25	1.25
0069	BEARING,DEVELOCORDER,	FB84-2	2	1.55	3.10
0070	BEARING,DEVELOCORDER	FB86-3	2	1.55	3.10
0071	BEARING,DEVELOCORDER	B-46-2-1/2	1	1.47	1.47
0101	CAPACITOR,LOW VOLTAGE CERAMIC,1.0UF,25VDC		4	.90	3.60
0102	CAPACITOR,10PF,500WVDC,10%	CK60BX100K	12	.90	10.80
0103	CAPACITOR,33PF,500VDC	10FD330J03	2	.32	.64
0104	CAPACITOR,100PF,500VDC	CM05FD101J03	10	.37	3.70
0105	CAPACITOR,100PF,3KV	30TA-T10	9	.24	2.16
0106	CAPACITOR,200PF,500WVDC	CM05FD201J03	12	.57	6.84
0107	CAPACITOR,CERAMIC,220PF,500VDC	CM05FD221J103	2	.59	1.18
0108	CAPACITOR,360PF,500WVDC	CM05FD361J03	2	.52	1.04
0109	CAPACITOR,390PF,500WVDC	CM05FD391J03	14	.54	7.56
0110	CAPACITOR,.00047UF,200WVDC	47192	9	.41	3.69
0111	CAPACITOR,500PF,500WVDC	CM05FD501J03	2	.66	1.32
0112	CAPACITOR,560PF,500WVDC	CM05FD561J03	6	.42	2.52
0113	CAPACITOR,.001UF,200VDC	18292	4	.38	1.52
0114	CAPACITOR,.0022UF,80VDC	2229B8	4	.52	2.08
0115	CAPACITOR,.0027UF,80VDC	272R8	3	.52	1.56
0116	CAPACITOR,.0033UF,80VDC	332R8	13	.52	6.76
0117	CAPACITOR,.0047UF,80VDC	472R8	10	.52	5.20
0118	CAPACITOR,.01UF,80VDC	1039R8	6	.52	3.12
0119	CAPACITOR,.012UF,80VDC	1239R8	10	.52	5.20
0120	CAPACITOR,.015UF,80VDC	1539R8	1	.57	.57
0121	CAPACITOR,.018UF,80VDC	1839R8	12	.57	6.84
0122	CAPACITOR,.022UF,80VDC	2239R8	3	.57	1.71
0123	CAPACITOR,TANTALUM,.022UF,35VDC	CS13BG223K	1	.95	.95
0124	CAPACITOR,.033UF,80VDC	3339R8	5	.61	3.05
0125	CAPACITOR,.033UF,100WVDC	33391	1	.52	.52
0126	CAPACITOR,DIFILM,.033UF,400VDC	4PS-S33	2	.26	.52
0127	CAPACITOR,.068UF,80VDC,10%	6839R8	4	.68	2.72
0128	CAPACITOR,.1UF,10VDC	Y5S-1Z	3	.23	.69
0129	CAPACITOR,.1UF,35VDC	CS13BG104K	6	.79	4.74

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0130	CAPACITOR-.1UF-80VDC	1049R8	6	.85	5.10
0131	CAPACITOR-.12UF-80VDC	1249R8	2	.85	1.70
0132	CAPACITOR-.33UF-600VDC	6PS-P33	4	.87	3.48
0133	CAPACITOR-.47UF-25VDC	5C02347X0250B3	2	.54	1.08
0134	CAPACITOR-.5UF-400VDC-DEVELOCORDER	PKM 4P5	2	.86	1.72
0135	CAPACITOR-.56UF-35VDC	CS13BF564K	3	.79	2.37
0136	CAPACITOR, .82UF, 100VDC, FILTER-AMPLIFIER	Z1X824K	3	1.42	4.26
0137	CAPACITOR-1.0UF-35VDC	CS13BG105K	10	.79	7.90
0138	CAPACITOR-1.0UF-25VDC	TL-1200	14	.72	10.08
0139	CAPACITOR-1.0UF-200VDC	29F-M1	1	1.01	1.01
0140	CAPACITOR-1.0UF-200VDC	MCR-2M1	2	1.08	2.16
0141	CAPACITOR-3.3UF-35VDC	CS13BG335K	4	.79	3.16
0142	CAPACITOR-6.8UF-35VDC	CS13BG685K	2	.79	1.58
0143	CAPACITOR, 10.0UF, 50VDC, ELECTRO CUBE	210B1B106J	1	5.50	5.50
0144	CAPACITOR-10MFD-450WDC	BR 10-450	1	.78	.78
0145	CAPACITOR-10.0UF-150WDC	CTA-1215	1	.79	.79
0146	CAPACITOR-10MFD-50WDC-ELPAC	VE5A106	2	5.50	11.00
0147	CAPACITOR, 15.0UF, 20VDC	CS13BE156K	11	.79	8.69
0148	CAPACITOR-20MFD-450WDC	BR 20-450	2	.93	1.86
0149	CAPACITOR-22.0UF-35VDC	CS13BF226K	1	.79	.79
0150	CAPACITOR-22.0UF-15VDC	CS13BD226K	3	.79	2.37
0151	CAPACITOR, 25UF, 50WDC	BR 25-50	1	.63	.63
0152	CAPACITOR-27.0UF-10VDC	CS13BE276K	7	.79	5.53
0153	CAPACITOR-33.0UF-10VDC	CS13BE336K	8	.79	6.32
0154	CAPACITOR-TANTALUM-33.0UF-35VDC	CS13BF336K	1	.79	.79
0155	CAPACITOR-47.0UF-20VDC	CS13BE476K	13	.79	10.27
0156	CAPACITOR-50UF-150WDC	BR 50-150	1	.86	.86
0157	CAPACITOR-100.0UF-15VDC	6714PYE	1	.90	.90
0158	CAPACITOR, 100.0UF, 20VDC	CS13BE107K	3	.79	2.37
0159	CAPACITOR-100MFD-150WDC	BR 100-150	1	1.05	1.05
0160	CAPACITOR-250 MFD-50WDC	BR 250-50	1	1.05	1.05
0162	CAPACITOR-860UF-40VDC	601D867G040JJ4	2	1.21	2.42
0164	CASE, SPARE SEISMOMETER	90-31161-01-01	1	75.00	75.00
0165	CIRCUIT BREAKER-5 AMPS-50DC MAX.	PAM-12MG6	1	13.29	13.29
0168	CLIP-ALLIGATOR-TEST LEAD	30C	15	.07	1.05
0169	CLIP-ALLIGATOR-TEST LEAD-0-SCOPE	344-0046-00	3	.08	.24
0170	CLIP-ALLIGATOR-TEST LEAD	60	11	.07	.77
0171	CLOCK-TELETYPE	279525A	1	50.00	50.00
0172	CLOCK-703 COMPUTER	279525A	1	50.00	50.00
0173	COIL SEISMOMETER 10K/7 OHMS	90-31337-01-01	3	60.00	180.00
0174	CONNECTOR- SOLDERLESS WIRE	PT-6M	104	.05	5.20
0175	CONNECTOR- CANNON	DDH50P102-A124	13	10.07	130.91
0176	CONNECTOR- CANNON	DDM-50S	4	10.75	43.00
0177	CONNECTOR, BENDIX RADIO PANEL	PT06E-8-4S	4	2.85	11.40
0179	CONNECTOR-COAXIAL PANEL RECEPTICLE	4240-050	1	1.36	1.36
0182	CONNECTOR-COAXIAL PLUG	74A68 UG-83/U	1	2.47	2.47
0184	CONNECTOR-COAXIAL PLUG	74A68	2	2.40	4.80
0186	CONNECTOR-COAXIAL	91836	6	7.87	47.22
0187	CONNECTOR-PC BOARD-BIFURCATED-CONTACT	50-10A-20	4	1.73	6.92
0188	CONNECTOR-PC BOARD-BIFURCATED-CONTACT	2VH10/1AAB	2	1.73	3.46

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT CST
0189	CONNECTOR,PC BOARD,BIFURCATED-CONTACT,44 PIN	250-22-70-115	6	4.79	28.74
0190	CONNECTOR,ELCO,38 PIN W/SHELL	8016-38	1	5.47	5.47
0191	CONNECTOR,WINCHESTER,DOUBLE 28 PIN	88D28D	6	6.35	38.10
0192	CONNECTOR,WINCHESTER,EXTENDER BOARD,22 PIN	88DJ22M	1	5.51	5.51
0193	CONNECTOR,WINCHESTER,EXTENDER BOARD,DOUBLE28PI	88DJ28M	1	6.42	6.42
0195	CONTACT ASSY, ASR-35 TELETYPE	179639	1	8.00	8.00
0199	COUPLING,FLEXIBLE,TELETYPE	193565	1	1.00	1.00
0200	COVER,CONNECTOR,CANNON	DD19977-19	1	1.55	1.55
0201	COVER,GLASS,VACUUM CHAMBER,TAPE DECK	3111759-10	2	27.00	54.00
0202	CONNECTOR,AMPHENOL BNC	31-304	6	2.40	14.40
0252	DIAPHRAGM,PROPANE PRESSURE REGULATOR	1C5359	4	2.00	8.00
0253	DIODE,AEI 3&5		24	2.50	60.00
0254	DIODE,SYLVANIA	1N270	2	.32	.64
0255	DIODE	1N456A	6	.42	2.52
0256	DIODE	1N645	1	.70	.70
0257	DIODE	1N710A	4	1.90	7.60
0258	DIODE	1N748A	1	1.05	1.05
0259	DIODE	1N752	1	1.05	1.05
0260	DIODE	1N753A	4	2.00	8.00
0261	DIODE	1N754A	16	1.05	16.80
0262	DIODE	1N756A	1	.78	.78
0263	DIODE,9.1V,20MA	1N757	2	1.10	2.20
0264	DIODE	1N821	2	4.32	8.64
0265	DIODE	1N914	95	.25	23.75
0266	DIODE	1N938A	4	10.50	42.00
0267	DIODE	1N938B	2	14.00	28.00
0268	DIODE	1N963B	2	1.37	2.74
0269	DIODE	1N968B	2	.78	1.56
0270	DIODE	1N969B	20	.78	15.60
0271	DIODE	1N991B	2	4.45	8.90
0272	DIODE	1N1184	5	3.55	17.75
0273	DIODE	1N1200A	2	2.10	4.20
0274	DIODE	1N2069	12	.62	7.44
0275	DIODE	1N2071	13	1.00	13.00
0276	DIODE,PLUG-IN RECTIFIER	1N2389	5	7.35	36.75
0277	DIODE	1N2981B	2	5.12	10.24
0278	DIODE	1N3027B	2	5.00	10.00
0279	DIODE	1N3030B	2	5.00	10.00
0280	DIODE	1N3063	3	.28	.84
0281	DIODE,750MA,50 PRV	1N4001	2	.38	.76
0282	DIODE	1N4004	6	.69	4.14
0283	DIODE	1N4115	23	.95	21.85
0284	DIODE	1N4448	4	.34	1.36
0285	DIODE	1N4570A	2	10.25	20.50
0286	DIODE	1N4576A	2	6.30	12.60
0287	DIODE	1N4611	1	1.00	1.00
0288	DIODE	1N4719	2	.66	1.32
0289	DIODE	1N5221B	8	.99	7.92
0290	DIODE	1N5228B	9	1.33	11.97
0291	DIODE	1N5231B	12	.95	11.40

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0292	DIODE	1N5234B	10	.99	9.90
0293	DIODE	1N5235B	7	1.33	9.31
0294	DIODE	1N5237B	3	.66	1.98
0295	DIODE	1N5239B	5	.99	4.95
0296	DIODE	1N5240A	3	.88	2.64
0297	DIODE	1N5244A	4	.66	2.64
0298	DIODE	1N5245A	3	.88	2.64
0299	DIODE	1N5245B	2	.88	1.76
0300	DIODE	1N5251B	2	.99	1.98
0301	DIODE	013-166	1	1.00	1.00
0302	DIODE	013-599	6	.66	3.96
0303	DIODE	013-67B	6	.88	5.28
0304	DIODE	031-635	3	1.10	3.30
0305	DIODE	3201325-10	4	3.50	14.00
0306	DIODE	3201326-10	4	7.25	29.00
0307	DIODE	3263024-10	41	.88	36.08
0308	DIODE	3263025-10	10	.88	8.80
0309	DIODE,SCR	36AD	4	4.30	17.20
0310	DIODE	580-053	4	2.65	10.60
0311	DIODE,SCR	C20F	3	4.50	13.50
0312	DIODE	C30F	4	4.50	18.00
0313	DIODE	ED3010A	2	.88	1.76
0314	DIODE	FD6666	4	.88	3.52
0315	DIODE	HW36	2	1.00	2.00
0316	DIODE,SCR TRIAC	SC45D	2	4.00	8.00
0317	DIODE	SCF2	6	1.00	6.00
0318	DIODE	T2G	7	.88	6.16
0319	DIODE	TI 145A0	1	1.50	1.50
0320	DIODE	TI 145A2	1	1.50	1.50
0321	DISC,HOLDER ASSY.,PROPANE PRESSURE REGULATOR	1AR520	11	.85	9.35
0322	DIVIDER,DRAWER,PLASTIC,ARCO-MILS	40-501	3	.75	2.25
0324	DRIVE ASSY.,FILM,DEVELOCORDER	90-17485-01-01	1	50.00	50.00
0401	EXTENSION,FRANGIBLE,STAB. ASSY.	90-31304-01-01	8	5.00	40.00
0451	FILM,16MM,KODAK,FINE GRAIN	1320	80	8.23	658.40
0453	FILTER ASSY.,MILLIPORE	YY1244000	1	25.00	25.00
0454	FILTER,TEG FUEL,5 MICRON	18280139	8	1.00	8.00
0457	FLEXURE ASSY.,TRIFLEXURE,SEISMOMETER	90-31154-01-01	1	1200.00	1200.00
0458	FLEXURE,BENDIX	500R-600	7	38.00	266.00
0459	FLEXURE,BENDIX	500R-800	6	38.00	228.00
0460	FLEXURE,BENDIX	6012-800	9	50.00	450.00
0461	FLEXURE,BENDIX	6016-600	6	38.00	228.00
0462	FOLLOWER,NYLON,DEVELOCORDER	90-04084-00	6	1.04	6.24
0464	FRAME ASSY.,TC-200 MODULE	90-31866-01-01	1	3.50	3.50
0465	FUSE,MDL	3/10 AMP	7	.40	2.80
0466	FUSE,AGX	1/4 AMP	10	.17	1.70
0467	FUSE,AGX	1/2 AMP	8	.17	1.36
0469	FUSE,GMA	1/2 AMP	8	.32	2.56
0470	FUSE,3AG SLO-MDL	1/2 AMP	7	.40	2.80
0471	FUSE,MDL(SB)	3/4 AMP	6	.40	2.40
0469	FUSE,3AG,AGC	1/2 AMP	11	.17	1.87

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0472	FUSE,3AG,ABC	3/4 AMP	9	.17	1.53
0473	FUSE,3AG,ABC	1 AMP	5	.12	.60
0474	FUSE,MDL(SB)	1 AMP	7	.40	2.80
0475	FUSE,3AG,ABC	3 AMP	8	.12	.96
0476	FUSE,3AG SB,MDL	3 AMP	23	.25	5.75
0479	FUSE,3AG SB (MDL)	5 AMP	10	.30	3.00
0477	FUSE,ABS	5 AMP	4	.09	.36
0478	FUSE,3AG,ABC	5 AMP	7	.09	.63
0480	FUSE,MDL	6 1/4 AMP	14	.30	4.20
0481	FUSE,3 AG SB,MDL	8 AMP	3	.30	.90
0500	GASKET,CONNECTOR(DDH50P102-A124-CONNECTOR		19	.30	5.70
0501	GASKET,CONNECTOR,HOFFMAN BOX,VOICE MONITOR	10-101949-12	4	.20	.80
0502	GASKET,FILTER-AMPLIFIER		1	.75	.75
0503	GASKET,HOFFMAN BOX		15	.35	5.25
0504	GASKET,SEALING,PROPANE REGULATOR	18?518	11	.50	5.50
0505	GASKET,TRIAX CONTROLLER		1	.35	.35
0506	GASKET,WELL HEAD HOFFMAN BOX		2	.35	.70
0508	GAUGE,DIRECT READING,FUEL LEVEL,	5148 S00776	2	6.60	13.20
0509	GEAR,BEVEL,DEVELOCORDER		5	1.50	7.50
0510	GEAR SET,100RPM,ASR-3, TELETYPE	161295	2	5.00	10.00
0511	GEAR,SPUR,DEVELOCORDER	Y6456	2	2.00	4.00
0512	GEAR,WORM,DEVELOCORDER	05-10	2	3.00	6.00
0513	GEAR,WORM,DEVELOCORDER	06-3	1	2.00	2.00
0514	GEAR,WORM,DEVELOCORDER		2	3.00	6.00
0515	GRILL,VAC,CHAMBER,TAPE DECK	3107210	8	2.50	20.00
0516	GUIDE ASSY.,TAPE DECK	3111659-10	1	74.00	74.00
0517	GRIP,KELLEMS	022-03-039	8	3.00	24.00
0518	GAUGE ASSY.,VACUUM,TAPE DECK	3117178-10A	1	32.00	32.00
0551	HEAD CLEANER,AMPEX TAPE DECK	087-007	3	2.00	6.00
0552	HEAD,READ/WRITE,TAPE DECK	3118430-01	11	250.00	1250.00
0553	HEAT SINK,BATTERY CHARGER		4	.04	.16
0554	HEATING UNIT,SOLDERING IRON,UNGAR	4037	1	5.90	5.90
0555	HUB/BRAKE ASSY.,TAPE DECK	3125306-01	2	3.50	7.00
0556	HOLDER,NYLON,PAN-TY CABLE TIE		189	.06	11.34
0600	INDUCTOR,1.5 MH,TC-200 MODULES	SW-1500	1	1.05	1.05
0601	INDUCTOR,10 MH,TC-200 MODULES	9330-24	4	1.26	5.04
0602	INTEGRATED CIRCUIT,DUAL JK FLIP/FLOP	473CJ	7	4.75	33.25
0603	INTEGRATED CIRCUIT	476CJ	6	4.90	29.40
0604	INTEGRATED CIRCUIT,DUAL 4 INPUT GATE	504BJ	19	7.75	147.25
0605	INTEGRATED CIRCUIT,DUAL 4 INPUT GATE	504BN	19	7.75	147.25
0606	INTEGRATED CIRCUIT,QUAD 2 INPUT GATE	505BJ	21	7.75	162.75
0607	INTEGRATED CIRCUIT,QUAD 2 INPUT GATE	505BN	19	7.75	147.25
0608	INTEGRATED CIRCUIT,TRIPLE 3 INPUT GATE	507BJ	15	8.88	133.20
0609	INTEGRATED CIRCUIT,TRIPLE 3 INPUT GATE	507BN	8	8.88	71.04
0610	INTEGRATED CIRCUIT,J-K FLIP/FLOP	509BJ	6	5.45	32.70
0611	INTEGRATED CIRCUIT,J-K FLIP/FLOP	509BN	47	5.45	256.15
0612	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	534CJ	4	5.00	20.00
0613	INTEGRATED CIRCUIT,QUAD 2 INPUT NAND/NOR GATE	535BJ	4	5.00	20.00
0614	INTEGRATED CIRCUIT,QUAD 2 INPUT NAND/NOR GATE	535BN	1	5.00	5.00
0615	INTEGRATED CIRCUIT,TRIPLE 3 INPUT NAND/NOR GAT	537CJ	6	5.00	30.00

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0615	INTEGRATED CIRCUIT,RS/JK CLOCKED FLIP/FLOP	539CJ	1	5.00	5.00
0617	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	540BJ	13	5.00	65.00
0618	INTEGRATED CIRCUIT, DUAL 4 INPUT NAND/NOR GATE	540BN	20	5.00	100.00
0619	INTEGRATED CIRCUIT,DUAL 4 INPUT GATE	544BN	20	5.00	100.00
0620	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	547CJ	19	5.00	95.00
0621	INTEGRATED CIRCUIT	575BJ	3	5.00	15.00
0622	INTEGRATED CIRCUIT	575BN	14	5.00	70.00
0623	INTEGRATED CIRCUIT,DUAL NAND/NOR POWER GATE	587CJ	13	5.00	65.00
0624	INTEGRATED CIRCUIT,OP. AMP.	709BE	5	1.65	8.25
0625	INTEGRATED CIRCUIT,OP. AMP.	709CE	10	1.65	16.50
0626	INTEGRATED CIRCUIT, COMPARATOR	710BE	2	1.50	3.00
0627	INTERGRATED CIRCUIT,COMPARATOR	710CE	3	1.50	4.50
0628	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	L93251	4	5.00	20.00
0629	INTEGRATED CIRCUIT	L94451	1	5.00	5.00
0630	INTEGRATED CIRCUIT,QUAD 2 INPUT NAND/NOR GATE	L94651	4	5.00	20.00
0631	INTEGRATED CIRCUIT,VOLTAGE FOLLOWER	LM102	4	15.65	62.60
0632	INTEGRATED CIRCUIT,VOLTAGE FOLLOWER	LM302	5	5.50	27.50
0633	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	MCA30P	2	2.50	5.00
0634	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND/NOR GATE	MCA32P	8	2.50	20.00
0635	INTEGRATED CIRCUIT	MCA33P	3	2.50	7.50
0636	INTEGRATED CIRCUIT,HEX INVERTER	MCA36P	5	2.50	12.50
0637	INTEGRATED CIRCUIT,HEX INVERTER	MCA37P	7	2.50	17.50
0638	INTEGRATED CIRCUIT,DUAL NAND/NOR POWER GATE	MCA44P	19	2.50	47.50
0639	INTEGRATED CIRCUIT,RS/JK FLIP CLOCKED FLIP/FLO	MCA45P	5	2.50	12.50
0640	INTEGRATED CIRCUIT,QUAD 2 INPUT NAND/NOR GATE	MCA46P	16	2.50	40.00
0641	INTEGRATED CIRCUIT,RS/JK CLOCKED FLIP/FLOP	MCA48P	6	2.50	15.00
0642	INTEGRATED CIRCUIT,	MCA49P	4	2.50	10.00
0643	INTEGRATED CIRCUIT,TRIPLE 3 INPUT NAND/NOR GAT	MCA62P	3	2.50	7.50
0644	INTEGRATED CIRCUIT	MC1712CL	2	11.25	22.50
0645	INTEGRATED CIRCUIT	1367-1 / RC867	2	2.50	5.00
0646	INTEGRATED CIRCUIT,QUAD 2 INPUT GATE	SN5400J	5	4.03	20.15
0647	INTEGRATED CIRCUIT,DUAL 4 INPUT GATE	SN5420J	9	4.03	36.27
0648	INTEGRATED CIRCUIT,QUAD 2 INPUT NAND GATE	SN54L00J	13	10.15	131.95
0649	INTEGRATED CIRCUIT	SN54L04J	2	7.60	15.20
0650	INTEGRATED CIRCUIT,TRIPLE 3 INPUT NAND GATE	SN54L10J	1	7.60	7.60
0651	INTEGRATED CIRCUIT,DUAL 4 INPUT NAND GATE	SN54L20J	2	7.60	15.20
0652	INTEGRATED CIRCUIT,8 INPUT NAND GATE	SN54L30J	1	7.60	7.60
0653	INTEGRATED CIRCUIT,JK FLIP/FLOP AND/OR INPUT	SN54L71J	7	14.20	99.40
0654	INTEGRATED CIRCUIT,JK FLIP/FLOP	SN54L74J	2	11.13	22.26
0655	INTEGRATED CIRCUIT,DC AMPLIFIER	U5R770231	1	13.13	13.13
0656	INTEGRATED CIRCUIT,OP.AMP.	U5B770939	1	1.38	1.38
0657	INTEGRATED CIRCUIT,VOLTAGE REGULATOR	U5J772631	1	3.78	3.78
0658	INTEGRATED CIRCUIT,VOLTAGE REGULATOR	U5R7723312	1	7.38	7.38
0659	INTEGRATED CIRCUIT,VOLTAGE REGULATOR	U5R7723393	5	3.13	15.65
0660	INTEGRATED CIRCUIT,ANALOG SWITCH	SW-2	3	4.95	14.85
0700	JACK,PHONE	PJ-B39	36	.90	32.40
0701	JET,PROPANE TORCH	JT6B4C	2	.75	1.50
0702	JOURNAL,RIGHT HAND,SEISMOMETER	90-311132-01-01	1	5.00	5.00
0751	KIT,ELECTRICAL SPLICE#3-M	82-A2	1	8.00	8.00
0752	KIT,MAINT.,TYPING UNIT,ASR-33 TELETYPE	182204	1	87.00	87.00

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0753	KIT,MAINT.,PUNCH & READER,ASR-33 TELETYPE	182211	1	82.00	82.00
0754	KIT,MAINT.,PERFORATOR & READER,ASR-35 TELETYPE	324127	1	97.00	97.00
0755	KIT,MAINT.,PRINTER & KEYBOARD,ASR-35 TELETYPE	324128	1	71.00	71.00
0756	KIT,RUBBER STAMP,SUPERIOR	2	1	6.95	6.95
0757	KIT,TRIAX ALIGNMENT		1	100.00	100.00
0758	KIT,WRAP LOCK,HANLER CORP.		6	3.00	18.00
0R00	LAMP,SENSE,VAC. CHAMBER,TAPE DECK	060-361	10	1.00	10.00
0R01	LAMP,MINATURE	CM328	43	.50	21.50
0R02	LAMP,MINATURE	330	15	.69	10.35
0R03	LAMP,MINATURE	334	22	.69	15.18
0R04	LAMP,MINATURE	338	37	.64	23.68
0R05	LAMP,MINATURE	342	9	1.44	12.96
0R06	LAMP,MINATURE	344	7	1.15	8.05
0R07	LAMP,MINATURE	388	8	1.10	8.80
0R08	LAMP,MINATURE	682	22	2.04	44.88
0R09	LAMP,MINATURE	1892	6	.21	1.26
0R10	LAMP,MINATURE	2309	2	.25	.50
0R11	LAMP,MINATURE,HAND LANTERN	PR13	8	.13	1.04
0R12	LAMP,PROJECTION, 115-125 VAC,50W	CAX	3	1.80	5.40
0R13	LAMP,PROJECTION,115-120VAC,300W	CLX	4	3.50	14.00
0R15	LAMP,NEON	NE-2J	9	.69	6.21
0R16	LAMP,MINATURE NEON	NE-51	10	.39	3.90
0R18	LIGHT,INDICATOR,125VAC,75W		2	2.34	4.68
0R19	LINING,BRAKE,TAKE-UP MOTOR,TAPE DECK	8301956-02	5	2.50	12.50
0R20	LOOP SENSE ASSY.,TAPE DECK VAC. CHAMBER	3108446-10	7	16.00	112.00
0R22	LAMP,MINATURE	GE-43	10	.49	4.90
0R23	LAMP,MINATURE	47	10	.13	1.30
0R51	MAGNET ASSY.,SEISMOMETER	90-31349-01-01	1	25.00	25.00
0R52	METER,AC VOLT,0-30V SCALE	50-152031	1	10.00	10.00
0R53	MOTOR,FAN,502A 0-55COPE	147-0022-00	1	15.00	15.00
0R54	MOTOR,115 VAC,110 RPM,TELETYPE	193958	1	20.00	20.00
0R55	MOTOR,HAYDON,,20VAC,36RPM,L	33017	7	25.00	175.00
0R56	MOTOR,HAYDON,,20VAC,36RPM,R	33018	6	25.00	150.00
0R57	MOTOR,HAYDON,20VAC 36RPM 2 PHASE	33618	3	25.00	75.00
0R58	MOTOR,27VDC,GLOBE INDUSTRIES	43A1099-4	1	25.00	25.00
0R59	MOTOR,DC,GEARCASE,SEISMOMETER	43A907	2	25.00	50.00
0R60	MOTOR,VACUUM,LAMB ELECTRIC	592-129	3	55.00	165.00
0R61	MOTOR,BLOWER,DEVELOCORDER	8433	1	10.00	10.00
0R62	MOTOR,HURST,SW,1 RPM	90-26589-02-01	1	31.41	31.41
0R63	MOTOR,PIN,HELICORDER	90-30469-01-01	1	187.50	187.50
0R64	MOTOR ASSY,FILM TENSION,DEVELOCORDER	L71WJ	1	25.00	25.00
0R65	MICROPHONE,HAND W/AMP,,SHURE	488T	1	45.00	45.00
0R00	NEEDLE,SYRINGE,BECTON & DICKINSON	18	1	2.00	2.00
0901	NETWORK,BINARY LADDER	90-33557-01-01	4	88.00	352.00
0951	ORFICE,TEG BURNER	1828-0131-4	12	.00	.00
0952	O-RING	2-116-S60-7	P	.05	.40
0953	O-RING	2-116-D604-7Z0	7	.05	.35
0954	O-RING		5	.05	.25
0955	O-RING	2-210-N506-7	12	.05	.60
0956	O-RING	2-211-N219-7	17	.05	.85

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
0957	O-RING	2-213-N219-7	28	.06	1.68
0958	O-RING	2-213-N506-7	10	.06	.60
0959	O-RING	2-215-N506-7	1	.06	.06
0960	O-RING	2-220-N506-7	11	.04	.44
0961	O-RING,PARKER	2-443-N506-7	22	1.00	22.00
0962	O-RING,PARKER	2-448-N506-7	7	1.00	7.00
0969	OSCILLATOR,CRYSTAL,T-12 TIMER,5HZ	90-18247-01	1	200.00	200.00
0970	**O** RING	2-12-C147-7	12	.25	3.00
1001	PAPER,CHART,ELECTRO SENSITIVE	9270-1082	4	11.00	44.00
1005	PAPER,TELETYPE,SINGLE COPY		14	.95	13.30
1005	PAPER,TELETYPE,3-COPY	7215	7	3.77	26.39
1007	PHOTOSENSE CELL,VAC. CHAMBER,TAPE DECK,	CL903N379	2	.00	.00
1008	POST,TELETYPE	161301	5	.08	.40
1009	PHOTOCELL&CLAMP,SEISMOMETER	CL703/2	4	2.43	9.72
1011	PHOTO SENSE ASSY.,VAC. CHAMBER,TAPE DECK	3109887-10C	12	55.00	660.00
1012	PIN,ROLL	39-020-0408	14	.03	.42
1013	PIN,ROLL	39-020-0410	10	.03	.30
1014	PIN,ROLL	39-020-0416	13	.03	.39
1015	PIN,ROLL		3	.04	.12
1016	PLATE,GROUND,COPPER,HOFFMAN BOX		4	1.00	4.00
1017	PLATE,INSULATOR,FIBERGLASS,HOFFMAN BOX		4	.75	3.00
1018	PLATE,NUT	90-31074-01-01	3	.08	.24
1019	PLUG,SINGLE BANANA	212	4	.45	1.80
1020	PLUG,SINGLE BANANA(TEAR DROP)	455	4	.38	1.52
1022	POTENTIOMETER,TRIM,200 OHM	32A2W-1-201	5	10.20	51.00
1024	POTENTIOMETER,TRIM,500 OHM	275-1-501	1	7.12	7.12
1025	POTENTIOMETER,TRIM,1K	32A2W-1-102	3	6.50	19.50
1026	POTENTIOMETER,TRIM,2K	3202-1-202	1	10.20	10.20
1027	POTENTIOMETER,VARIABLE,2.5K	RV4CAYSA252A	1	2.50	2.50
1029	POTENTIOMETER,TRIM,10K	275-1-103	1	7.12	7.12
1030	POTENTIOMETER,TRIM,10K,SPECTROL	42-1-1-103	2	6.00	12.00
1031	POTENTIOMETER,TRIM,10K	42-2-10-103	1	6.00	6.00
1032	POTENTIOMETER,TRIM,10K	32A2W-1-103	5	10.20	51.00
1033	POTENTIOMETER,TRIM,20K	276-1-203	1	6.00	6.00
1034	POTENTIOMETER,TRIM,20K	79PR20K	2	6.00	12.00
1035	POTENTIOMETER,TRIM,100K,SPECTROL	42-1-1-104	2	7.12	14.24
1036	PROBE,TEST	317	7	.49	3.43
1037	PROBE,TEST(DULL FINISH)	323	6	.53	3.18
1038	PUMP ASSEMBLY,DEVELOPORDER		1	5.00	5.00
1040	PIN,MALE CONNECTOR,COPPER		58	.03	1.74
1100	PC BOARD,ABC,CONTROL JUMPER BOX	2003755	3	45.00	135.00
1101	PC BOARD,EXTENDER CARD,TAPE DECK	3110794-10	1	25.00	25.00
1102	PC BOARD,EXTENDER CARD,T-12 TIMING SYSTEM	8-A04-39AC-K31	1	15.00	15.00
1103	PC BOARD,FLIP-FLOP(HIGH SPEED),T-12 TIMING SYS	23046-1	2	85.00	170.00
1104	PC BOARD,FLIP-FLOP(LOW SPEED),T-12 TIMING SYST	23046-2	3	85.00	255.00
1105	PC BOARD,GATE(2-INPUT NAND),T-12 TIMING SYSTEM	23056-1	1	90.00	90.00
1106	PC BOARD,GATE(3-INPUT NAND),T-12 TIMING SYSTEM	23016	1	90.00	90.00
1107	PC BOARD,GATE(WRITE POWER),TAPE DECK	3107268-10	1	150.00	150.00
1108	PC BOARD,INPUT BUFFER,TAPE DECK	3118228-01	1	230.00	230.00
1109	PC BOARD,OUTPUT DRIVER,TAPE DECK	3119589-01	1	185.00	185.00

NO	NOMENCLATURE	MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1110	PC BOARD,JUMPER CARD,CONTROL-JUMPER BOX		2002741	2	40.00	80.00
1111	PC BOARD,JUMPER CARD W/AGC,CONTROL-JUMPER BOX			1	75.00	75.00
1112	PC BOARD,MATRIX CARD,T-12 TIMING SYSTEM		23019	1	100.00	100.00
1113	PC BOARD,OSCILLATOR BOARD,TRIAX SEISMOMETER		32187-01-01	4	60.00	240.00
1114	PC BOARD,OUTPUT MODULATOR,T-12 TIMING SYSTEM		23022	1	75.00	75.00
1115	PC BOARD,POWER SUPPLY,TELETYPE		183087	1	45.00	45.00
1116	PC BOARD,POWER SUPPLY,T-12 TIMING SYSTEM		23034	1	90.00	90.00
1117	PC BOARD,READ AMPLIFIER,TAPE DECK		$310_7 26_6$-10	1	14_5.00	14_5.00
1118	PC BOARD,READ DESKEW,TAPE DECK		3123R47-01	1	155.00	155.00
1120	PC BOARD,SENSOR(FUEL LEVEL)CONTROL INTERFACE		90-38619-01-01	1	45.00	45.00
11_21	PC BOARD,STROBE GENERATOR, TAPE DECK		3107_057-10	1	16_0.00	16_0.00
1123	PC BOARD,WRITE AMPLIFIER,TAPE DECK		3112383-10	1	125.00	125.00
1125	PC BOARD SUB-MULTIPLEX AMPLIFIER		32739-01-01	1	20.00	20.00
1203	RECTIFIER		180B3A	5	2.25	11.25
1204	REGULATOR,NITROGEN,FISHER		1301-F	10	15.00	150.00
120_5	REGULATOR,PROPANE PRESSURE,FISHER		$92H-1/31$	3	7.00	21.00
1206	REGULATOR,HIGH PRESS.,LIQUID OR VAPOR		95L/39	1	60.00	60.00
1207	REGULATOR,VOLTAGE,METRIC,TRIAX SEISMOMETER		VR-3	2	35.00	70.00
120_8	REGULATOR,VOLTAGE,BATTERY CHARGER		280_288	4	6.95	27.80
1209	RELAY,12VDC,GRIGSBY-BARTON		GB-21A-R1250	1	6.00	6.00
1210	RELAY,POTTER-BROMFIELD		KHS 17A11	2	8.55	17.10
1211	RELAY,12 VDC,TAPE DECK		GRN 16_03A-1	1	5.05	5.05
1212	RELAY,CLAREI		MRMC-109_5	1	8.00	8.00
1214	RELAY,ELECTRO TEC,26.5VDC,200 OHMS		085-14-01-01	1	8.00	8.00
1215	RELAY,LEACH		E-A1B	1	7.50	7.50
1216	RESIN,ELECTRICAL INSULATING,3-M		4	2	2.95	5.9_0
1217	RESISTOR,FIXED,0.5% 0.234_5 OHM			3	$.0_9$	$.2_7$
1218	RESISTOR,FIXED,5%,5W 2 OHMS		995-58	2	.63	1.26
1219	RESISTOR,FIXED,1% 4.0 OHMS		6845N	1	.75	.75
122_0	RESISTOR,FIXED,1% 4.99 OHMS			9	$.9_4$	8.4_6
1221	RESISTOR,FIXED,1/4W,5% 10 OHMS			5	.10	.50
1222	RESISTOR,FIXED,1/2W,5% 10 OHMS			5	.10	.50
1223	RESISTOR,FIXED,1W,5% 10 OHMS			5	.10	.50
1224	RESISTOR,FIXED,2W,5% 10 OHMS			4	.15	.60
1225	RESISTOR,FIXED,1/4W,5% 15 OHMS			5	.10	.50
1226	RESISTOR,FIXED,1/2W,5% 15 OHMS			6	.10	.60
122_7	RESISTOR,FIXED,1W,5% 15 OHMS			5	.10	.50
1228	RESISTOR,FIXED,2W,5% 15 OHMS			5	.15	.75
1229	RESISTOR,FIXED,1% 20.0 OHMS			1	.95	.95
1230	RESISTOR,ADJUSTABLE,OHMITE DIVIOHM,12W 25 OHM			1	1.28	1.28
1231	RESISTOR,FIXED,1/4W,5% 27 OHMS			5	.10	.50
1232	RESISTOR,FIXED,1/2W,5% 27 OHMS			5	.10	.50
1233	RESISTOR,FIXED,1W,5% 27 OHMS			6	.10	.60
123_4	RESISTOR,FIXED,2W,5% 27 OHMS			5	.15	.75
1235	RESISTOR,FIXED,1/4W,5% 33 OHMS			5	.10	.50
1236	RESISTOR,FIXED,1/2W,5% 33 OHMS			4	.10	.40
1237	RESISTOR,FIXED,1% 35.7 OHMS			1	.95	.95
1238	RESISTOR,FIXED,1% 36.5 OHMS			2	.95	1.90
1239	RESISTOR,FIXED,1% 41.2 OHMS			1	.95	.95
1240	RESISTOR,FIXED,1% 42.2 OHMS			4	.95	3.80

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1241	RESISTOR,FIXED,1/4W,5% 43 OHMS		5	.10	.50
1242	RESISTOR,FIXED,2W,5% 43 OHMS		5	.15	.75
1243	RESISTOR,FIXED,1% 43.2 OHMS		2	.95	1.90
1244	RESISTOR,FIXED,1% 44.2 OHMS		3	.95	2.85
1245	RESISTOR,FIXED,1% 45.3 OHMS		3	.95	2.85
1246	RESISTOR,FIXED,1% 46.4 OHMS		4	.95	3.80
1247	RESISTOR,FIXED,1/4W,5% 47 OHMS		9	.10	.90
1248	RESISTOR,FIXED,1/2W,5% 47 OHMS		2	.10	.20
1249	RESISTOR,FIXED,1W,5% 47 OHMS		4	.10	.40
1250	RESISTOR,FIXED,2W,5% 47 OHMS		5	.15	.75
1251	RESISTOR,FIXED,1% 47.5 OHMS		4	.95	3.80
1252	RESISTOR,FIXED,1% 48.7 OHMS		3	.95	2.85
1253	RESISTOR,FIXED,1/4W,5% 51 OHMS		15	.10	1.50
1254	RESISTOR,FIXED,1% 52.3 OHMS		3	.95	2.85
1255	RESISTOR,FIXED,1% 54.9 OHMS		7	.95	6.65
1256	RESISTOR,FIXED,1/4W 5% 56 OHMS		5	.10	.50
1257	RESISTOR,FIXED,1% 56.2 OHMS		7	.95	6.65
1258	RESISTOR,FIXED,1% 57.6 OHMS		10	.95	9.50
1259	RESISTOR,FIXED,1% 59.0 OHMS		11	.95	10.45
1260	RESISTOR,FIXED,1% 60.4 OHMS		14	.95	13.30
1261	RESISTOR,FIXED,1% 61.9 OHMS		19	.95	18.05
1262	RESISTOR,FIXED,1% 63.4 OHMS		14	.95	13.30
1263	RESISTOR,FIXED,1% 64.9 OHMS		8	.95	7.60
1264	RESISTOR,FIXED,1% 66.5 OHMS		6	.95	5.70
1265	RESISTOR,FIXED,1% 68.1 OHMS		6	.95	5.70
1266	RESISTOR,FIXED,1%,1/4W 69.8 OHMS		5	.95	4.75
1267	RESISTOR,FIXED,1% 71.5 OHMS		4	.95	3.80
1268	RESISTOR,FIXED,1/8W,5% 100 OHMS		6	.20	1.20
1269	RESISTOR,FIXED,1/4W,5% 100 OHMS		8	.10	.80
1270	RESISTOR,FIXED,1/2W,5% 100 OHMS		8	.10	.80
1271	RESISTOR,FIXED,1W,5% 100 OHMS		6	.10	.60
1272	RESISTOR,FIXED,2W,5% 100 OHMS		4	.15	.60
1273	RESISTOR,FIXED,1/4W,5% 150 OHMS		10	.10	1.00
1274	RESISTOR,FIXED,1/2W,5% 150 OHMS		5	.10	.50
1275	RESISTOR,FIXED,1W,5% 150 OHMS		5	.10	.50
1276	RESISTOR,FIXED,2W,5% 150 OHMS		4	.15	.60
1277	RESISTOR,FIXED,1/4W,5% 270 OHMS		4	.10	.40
1278	RESISTOR,FIXED,1/2W,5% 270 OHMS		5	.10	.50
1279	RESISTOR,FIXED,1W,5% 270 OHMS		6	.10	.60
1280	RESISTOR,FIXED,2W,5% 270 OHMS		3	.15	.45
1281	RESISTOR,FIXED,1% 294 OHMS		15	.95	14.25
1282	RESISTOR,FIXED,1/8W,5% 300 OHMS		9	.20	1.80
1283	RESISTOR,FIXED,1/4W,5% 300 OHMS		7	.10	.70
1284	RESISTOR,FIXED,1/4W,5% 330 OHMS		3	.10	.30
1285	RESISTOR,FIXED,1/2W,5% 330 OHMS		3	.10	.30
1286	RESISTOR,FIXED,1W,5% 330 OHMS		6	.10	.60
1287	RESISTOR,FIXED,2W,5% 330 OHMS		1	.15	.15
1288	RESISTOR,FIXED,1/4W,5% 470 OHMS		11	.10	1.10
1289	RESISTOR,FIXED,1/2W,5% 470 OHMS		7	.10	.70
1290	RESISTOR,FIXED,1W,5% 470 OHMS		6	.10	.60

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1291	RESISTOR,FIXED,2W,5% 470 OHMS		5	.15	.75
1292	RESISTOR,FIXED,1/4W,5% 510 OHMS		15	.10	1.50
1293	RESISTOR,FIXED,1/2W,5% 510 OHMS		10	.10	1.00
1294	RESISTOR,FIXED,1/4W,1% 536 OHMS		2	1.04	2.08
1295	RESISTOR,FIXED,1/4W,5% 560 OHMS		4	.10	.40
1296	RESISTOR,FIXED,1/4W,5% 620 OHMS		5	.10	.50
1297	RESISTOR,FIXED,1W,5% 620 OHMS		2	.10	.20
1298	RESISTOR,FIXED,1/4W,5% 680 OHMS		7	.10	.70
1299	RESISTOR,FIXED,1/2W,5% 680 OHMS		5	.10	.50
1300	RESISTOR,FIXED,1W,5% 680 OHMS		3	.10	.30
1301	RESISTOR,FIXED,2W,5% 680 OHMS		4	.15	.60
1302	RESISTOR,FIXED,1/4W,5% 750 OHMS		4	.10	.40
1303	RESISTOR,FIXED,1/4W,5% 820 OHMS		7	.10	.70
1304	RESISTOR,FIXED,1% 976 OHMS		4	.95	3.80
1305	RESISTOR,FIXED,2%,1/4W 1K OHMS		6	1.04	6.24
1306	RESISTOR,FIXED,1/4W,5% 1K OHMS		42	.10	4.20
1307	RESISTOR,FIXED,1/2W,1% 1K OHMS		2	.95	1.90
1308	RESISTOR,FIXED,1/2W,5% 1K OHMS		8	.10	.80
1309	RESISTOR,FIXED,1W,5% 1K OHMS		8	.10	.80
1310	RESISTOR,FIXED,2W,5% 1K OHMS		5	.15	.75
1311	RESISTOR,FIXED,1/8W,1% 1.02K OHMS		5	.95	4.75
1312	RESISTOR,FIXED,1/4W,5% 1.1K OHMS		1	.10	.10
1313	RESISTOR,FIXED,1/4W,1% 1.4K OHMS		1	.95	.95
1314	RESISTOR,FIXED,1% 1.5K OHMS		5	1.04	5.20
1315	RESISTOR,FIXED,1/4W,5% 1.5K OHMS		35	.10	3.50
1316	RESISTOR,FIXED,1/2W,5% 1.5K OHMS		4	.10	.40
1317	RESISTOR,FIXED,1W,5% 1.5K OHMS		7	.10	.70
1318	RESISTOR,FIXED,2W,5% 1.5K OHMS		5	.15	.75
1319	RESISTOR,FIXED,2% 1.6K OHMS		1	.95	.95
1320	RESISTOR,FIXED,1/4W,5% 1.6K OHMS		1	.10	.10
1322	RESISTOR,FIXED,1% 1.96K OHMS		10	.95	9.50
1323	RESISTOR,FIXED,2% 2.0K OHMS		3	.95	2.85
1324	RESISTOR,FIXED,1/4W,5% 2K OHMS		6	.10	.60
1325	RESISTOR,FIXED,1/4W,5% 2.2K OHMS		10	.10	1.00
1326	RESISTOR,FIXED,1/2W,5% 2.2K OHMS		3	.10	.30
1327	RESISTOR,FIXED,1W,5% 2.2K OHMS		5	.10	.50
1328	RESISTOR,FIXED,2W,5% 2.2K OHMS		5	.15	.75
1329	RESISTOR,FIXED,1/4W,5% 2.7K OHMS		6	.10	.60
1330	RESISTOR,FIXED,1/2W,5% 2.7K OHMS		5	.06	.30
1331	RESISTOR,FIXED,1W,5% 2.7K OHMS		4	.06	.24
1332	RESISTOR,FIXED,2W,5% 2.7K OHMS		7	.15	1.05
1333	RESISTOR,FIXED,1% 2.8K OHMS		2	.95	1.90
1334	RESISTOR,FIXED,1% 2.94K OHMS		3	.95	2.85
1335	RESISTOR,FIXED,1/4W,5% 3K OHMS		5	.10	.50
1336	RESISTOR,FIXED,1% 3.01K OHMS		2	.95	1.90
1337	RESISTOR,FIXED,2% 3.3K OHMS		5	.95	4.75
1338	RESISTOR,FIXED,1/4W,5% 3.3K OHMS		16	.10	1.60
1339	RESISTOR,FIXED,1% 3.65K OHMS		3	1.04	3.12
1340	RESISTOR,FIXED,1/4W,5% 4.3K OHMS		40	.10	4.00
1341	RESISTOR,FIXED,1/4W,1% 4.32K OHMS		2	.95	1.90

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1342	RESISTOR,FIXED,1/4W,5% 4.7K OHMS		11	.10	1.10
1343	RESISTOR,FIXED,1/2W,5% 4.7K OHMS		7	.10	.70
1344	RESISTOR,FIXED,1W,5% 4.7K OHMS		10	.10	1.00
1345	RESISTOR,FIXED,2W,5% 4.7K OHMS		3	.15	.45
1346	RESISTOR,FIXED,1/4W,5% 5.1K OHMS		2	.05	.10
1347	RESISTOR,FIXED,1% 5.9K OHMS		1	.95	.95
1348	RESISTOR,FIXED,1% 6.19K OHMS		12	.95	11.40
1349	RESISTOR,FIXED,1/4W,1% 6.49K OHMS		2	.95	1.90
1350	RESISTOR,FIXED,1/4W,5% 6.8K OHMS		10	.10	1.00
1351	RESISTOR,FIXED,1/2W,5% 6.8K OHMS		9	.06	.54
1352	RESISTOR,FIXED,1W,5% 6.8K OHMS		5	.05	.25
1353	RESISTOR,FIXED,2W,5% 6.8K OHMS		4	.15	.60
1354	RESISTOR,FIXED,1% 7.15K OHMS		2	.95	1.90
1355	RESISTOR,FIXED,2% 8.2K OHMS		1	.95	.95
1356	RESISTOR,FIXED,1/4W,5% 8.2K OHMS		5	.10	.50
1357	RESISTOR,FIXED,1/4W,5% 9.1K OHMS		5	.10	.50
1358	RESISTOR,FIXED,1/4W,0.02% 10K OHMS		2	1.06	2.12
1359	RESISTOR,FIXED,1% 10K OHMS		28	.95	26.60
1360	RESISTOR,FIXED,2% 10K OHMS		3	.95	2.85
1361	RESISTOR,FIXED,1/4W,5% 10K OHMS		50	.10	5.00
1362	RESISTOR,FIXED,1/2W,5% 10K OHMS		16	.10	1.60
1363	RESISTOR,FIXED,1W,5% 10K OHMS		4	.10	.40
1364	RESISTOR,FIXED,2W,5% 10K OHMS		5	.15	.75
1365	RESISTOR,FIXED,1% 11.5K OHMS		5	.95	4.75
1366	RESISTOR,FIXED,1/4W,5% 13K OHMS		4	.10	.40
1367	RESISTOR,FIXED,1% 13.7K OHMS		1	.95	.95
1368	RESISTOR,FIXED,1/4W,5% 15K OHMS		9	.10	.90
1369	RESISTOR,FIXED,1/2W,5% 15K OHMS		7	.10	.70
1370	RESISTOR,FIXED,1W,5% 15K OHMS		8	.10	.80
1371	RESISTOR,FIXED,2W,5% 15K OHMS		4	.15	.60
1372	RESISTOR,FIXED,1/2W,1% 16.2K OHMS		1	.95	.95
1373	RESISTOR,FIXED,1% 18K OHMS		2	1.10	2.20
1374	RESISTOR,FIXED,1/4W,5% 18K OHMS		17	.10	1.70
1375	RESISTOR,FIXED,1% 18.2K OHMS		7	.95	6.65
1376	RESISTOR,FIXED,1/4W,0.02% 20K OHMS		2	1.06	2.12
1377	RESISTOR,FIXED,1/2W,1% 20K OHMS		2	.95	1.90
1378	RESISTOR,FIXED,1/4W,5% 20K OHMS		7	.10	.70
1379	RESISTOR,FIXED,1/4W,5% 22K OHMS		3	.10	.30
1380	RESISTOR,FIXED,1/2W,5% 22K OHMS		4	.10	.40
1381	RESISTOR,FIXED,1W,5% 22K OHMS		5	.10	.50
1382	RESISTOR,FIXED,2W,5% 22K OHMS		6	.15	.90
1383	RESISTOR,FIXED,1/4W,5% 24K OHMS		9	.10	.90
1384	RESISTOR,FIXED,1/2W,1% 24.9K OHMS		2	.95	1.90
1385	RESISTOR,FIXED,1/4W,5% 27K OHMS		4	.10	.40
1386	RESISTOR,FIXED,1/2W,5% 27K OHMS		10	.10	1.00
1387	RESISTOR,FIXED,1W,5% 27K OHMS		10	.10	1.00
1388	RESISTOR,FIXED,2W,5% 27K OHMS		5	.15	.75
1389	RESISTOR,FIXED,1/8W,1% 29.4K OHMS		2	1.06	2.12
1390	RESISTOR,FIXED,1%,1/4W 30.1K OHMS		13	1.04	13.52
1392	RESISTOR,FIXED,1/4W,5% 33K OHMS		9	.10	.90

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1393	RESISTOR,FIXED,1/2W,5% 33K OHMS		2	.10	.20
1394	RESISTOR,FIXED,1W,5% 33K OHMS		6	.10	.60
1395	RESISTOR,FIXED,2W,5% 33K OHMS		5	.15	.75
1396	RESISTOR,FIXED,1/4W,5% 39K OHMS		13	.10	1.30
1397	RESISTOR,FIXED,1/2W 5% 39K OHMS		5	.10	.50
1398	RESISTOR,FIXED,1W,5% 39K OHMS		5	.10	.50
1399	RESISTOR,FIXED,2W,5% 39K OHMS		5	.15	.75
1400	RESISTOR,FIXED,1/4W,1% 39.2K OHMS		2	.95	1.90
1401	RESISTOR,FIXED,1/4W,5% 43K OHMS		5	.10	.50
1402	RESISTOR,FIXED,1/4W,5% 47K OHMS		13	.10	1.30
1403	RESISTOR,FIXED,1/2W,5% 47K OHMS		10	.10	1.00
1404	RESISTOR,FIXED,1W,5% 47K OHMS		10	.10	1.00
1405	RESISTOR,FIXED,2W,5% 47K OHMS		5	.15	.75
1407	RESISTOR,FIXED,1% 61.9K OHMS		1	.95	.95
1408	RESISTOR,FIXED,1/4W,5% 62K OHMS		10	.10	1.00
1409	RESISTOR,FIXED,1/4W,5% 68K OHMS		8	.10	.80
1410	RESISTOR,FIXED,1/2W,5% 68K OHMS		7	.10	.70
1411	RESISTOR,FIXED,1W,5% 68K OHMS		6	.10	.60
1412	RESISTOR,FIXED,2W,5% 68K OHMS		5	.15	.75
1413	RESISTOR,FIXED,1/4W,1% 78.7K OHMS		2	.95	1.90
1414	RESISTOR,FIXED,1/4W,5% 82K OHMS		7	.10	.70
1415	RESISTOR,FIXED,1/2W,5% 82K OHMS		6	.10	.60
1416	RESISTOR,FIXED,1W,5% 82K OHMS		7	.10	.70
1417	RESISTOR,FIXED,2W,5% 82K OHMS		5	.15	.75
1418	RESISTOR,FIXED,1/4W,5% 91K OHMS		3	.10	.30
1419	RESISTOR,FIXED,1% 97.6K OHMS		5	.95	4.75
1420	RESISTOR,FIXED,2% 100K OHMS		2	1.04	2.08
1421	RESISTOR,FIXED,1/2W,1% 100K OHMS		7	1.04	7.28
1422	RESISTOR,FIXED,1/4W,5% 100K OHMS		17	.10	1.70
1423	RESISTOR,FIXED,1/2W,5% 100K OHMS		7	.10	.70
1424	RESISTOR,FIXED,1W,5% 100K OHMS		20	.10	2.00
1425	RESISTOR,FIXED,2W,5% 100K OHMS		5	.15	.75
1426	RESISTOR,FIXED,1/4W,5% 150K OHMS		8	.10	.80
1427	RESISTOR,FIXED,1/2W 5% 150K OHMS		5	.10	.50
1428	RESISTOR,FIXED,1W,5% 150K OHMS		10	.10	1.00
1429	RESISTOR,FIXED,2W,5% 150K OHMS		5	.15	.75
1430	RESISTOR,FIXED,1/4W,1% 158K OHMS		2	.95	1.90
1431	RESISTOR,FIXED,1%,1/4W 169K OHMS		1	.94	.94
1432	RESISTOR,FIXED,1/4W,5% 180K OHMS		1	.13	.13
1433	RESISTOR,FIXED,1/2W,1% 200K OHMS		1	.95	.95
1434	RESISTOR,FIXED,1/4W,5% 220K OHMS		12	.13	1.56
1435	RESISTOR,FIXED,1/2W,5% 220K OHMS		8	.13	1.04
1436	RESISTOR,FIXED,1W,5% 220K OHMS		7	.15	1.05
1437	RESISTOR,FIXED,2W,5% 220K OHMS		5	.30	1.50
1438	RESISTOR,FIXED,1/4W,5% 270K OHMS		5	.13	.65
1439	RESISTOR,FIXED,1/2W,5% 270K OHMS		4	.13	.52
1440	RESISTOR,FIXED,1W,5% 270K OHMS		20	.15	3.00
1441	RESISTOR,FIXED,2W,5% 270K OHMS		5	.30	1.50
1442	RESISTOR,FIXED,1/4W,1% 316K OHMS		2	.95	1.90
1443	RESISTOR,FIXED,1/4W,5% 330K OHMS		8	.13	1.04

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT CST
1444	RESISTOR,FIXED,1/2W,5% 330K OHMS		8	.13	1.04
1445	RESISTOR,FIXED,1W,5% 330K OHMS		7	.15	1.05
1446	RESISTOR,FIXED,2W,5% 330K OHMS		5	.27	1.35
1447	RESISTOR,FIXED,1/4W,5% 470K OHMS		5	.13	.65
1448	RESISTOR,FIXED,1/2W,5% 470K OHMS		4	.13	.52
1449	RESISTOR,FIXED,1W,5% 470K OHMS		20	.15	3.00
1450	RESISTOR,FIXED,2W,5% 470K OHMS		5	.27	1.35
1451	RESISTOR,FIXED,1/4W,1% 634K OHMS		2	.95	1.90
1452	RESISTOR,FIXED,1/4W,5% 680K OHMS		5	.13	.65
1453	RESISTOR,FIXED,1/2W,5% 680K OHMS		5	.13	.65
1454	RESISTOR,FIXED,1W,5% 680K OHMS		7	.15	1.05
1455	RESISTOR,FIXED,2W,5% 680K OHMS		5	.27	1.35
1456	RESISTOR,FIXED,1/4W,5% 1 MEG OHMS		10	.13	1.30
1457	RESISTOR,FIXED,1/2W,5% 1 MEG OHMS		9	.13	1.17
1458	RESISTOR,FIXED,1W,5% 1. MEG OHMS		5	.15	.75
1459	RESISTOR,FIXED,2W,5% 1. MEG OHMS		5	.27	1.35
1460	RESISTOR,FIXED,1% 1.27 MEG OHMS		1	.95	.95
1461	RESISTOR,FIXED,1/4W,5% 1.5 MEG OHMS		6	.13	.78
1462	RESISTOR,FIXED,1/2W,5% 1.5 MEG OHMS		5	.13	.65
1463	RESISTOR,FIXED,1W,5% 1.5 MEG OHMS		5	.15	.75
1464	RESISTOR,FIXED,2W,5% 1.5 MEG OHMS		5	.27	1.35
1465	RESISTOR,FIXED,1/4W,5% 2.2 MEG OHMS		6	.13	.78
1466	RESISTOR,FIXED,1/2W,5% 2.2 MEG OHMS		6	.13	.78
1467	RESISTOR,FIXED,1W,5% 2.2 MEG OHMS		5	.15	.75
1468	RESISTOR,FIXED,2W,5% 2.2 MEG OHMS		5	.27	1.35
1469	RESISTOR,FIXED,1/4W,5% 2.4 MEG OHMS		2	.13	.26
1470	RESISTOR,FIXED,1/4W,5% 2.7 MEG OHMS		6	.13	.78
1471	RESISTOR,FIXED,1/2W,5% 2.7 MEG OHMS		8	.13	1.04
1472	RESISTOR,FIXED,1W,5% 2.7 MEG OHMS		5	.15	.75
1473	RESISTOR,FIXED,2W,5% 2.7 MEG OHMS		5	.27	1.35
1474	RESISTOR,FIXED,1/4W,5% 3.9 MEG OHMS		6	.13	.78
1475	RESISTOR,FIXED,1/2W,5% 3.9 MEG OHMS		6	.13	.78
1476	RESISTOR,FIXED,1W,5% 3.9 MEG OHMS		6	.15	.90
1477	RESISTOR,FIXED,2W,5% 3.9 MEG OHMS		5	.27	1.35
1478	RESISTOR,FIXED,1/4W,5% 4.7 MEG OHMS		6	.13	.78
1479	RESISTOR,FIXED,1/2W,5% 4.7 MEG OHMS		5	.13	.65
1480	RESISTOR,FIXED,1W,5% 4.7 MEG OHMS		4	.15	.60
1481	RESISTOR,FIXED,2W,5% 4.7 MEG OHMS		5	.27	1.35
1482	RESISTOR,FIXED,1/4W,5% 6.8 MEG OHMS		6	.13	.78
1483	RESISTOR,FIXED,1/2W,5% 6.8 MEG OHMS		6	.13	.78
1484	RESISTOR,FIXED,1W,5% 6.8 MEG OHMS		5	.15	.75
1485	RESISTOR,FIXED,2W,5% 6.8 MEG OHMS		5	.27	1.35
1486	RESISTOR,FIXED,1/4W,5% 10 MEG OHMS		7	.13	.91
1487	RESISTOR,FIXED,1/2W,5% 10 MEG OHMS		2	.13	.26
1488	RESISTOR,FIXED,1W,5% 10 MEG OHMS		5	.15	.75
1489	RESISTOR,FIXED,2W,5% 10 MEG OHMS		5	.27	1.35
1490	RESISTOR,PHOTOSENSITIVE,TAPE DECK	015-030	2	2.91	5.82
1491	RETAINER,SLIDE,BIRTCHER,FILTER-AMPLIFIER	155-11-3	14	.59	8.26
1494	RING,HOLD DOWN KNOB,TAPE DECK	3100900-10	2	.90	1.80
1495	RING,PACKING 3/4"IDX1 1/4"OD		4	.17	.68

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1496	RING,RETAINING	5100-25	23	.10	2.30
1497	RING,RETAINING	5100-100	7	.25	1.75
1498	ROLLER,PRESSURE,DEVELOCORDER	90-06939-01-01	1	.75	.75
1499	RETAINER,PINION,TELETYPE	159287	2	.25	.50
1500	RESISTOR,FIXED 5% 1W 3.0K OHM		6	.00	.00
1501	ROLLER-DRIVE ASSY-DEVELOCORDER	90-13364-01-01	3	7.00	21.00
1551	SCREW,BRASS	1-72NF	30	.15	4.50
1552	SCREW,MODIFIED,SS	31052-01-01	3	.15	.45
1553	SCREW,SS	2-56	190	.05	9.50
1554	SYRINGE,5CC GLASS MULTIFIT,BECTON + DICKINSON	N579	1	3.77	3.77
1555	SEAL RING,VACUUM MOTOR	3108335-10	3	1.45	4.35
1557	SHAFT,BEARING,DEVELOCORDER	90-03715-01-01	1	2.00	2.00
1558	SHAFT,FILM DRIVE,DEVELOCORDER	90-03720-01-01	1	3.50	3.50
1559	SHAFT,FLEXIBLE,SS WHITE,TRIAX SEISMOMETER	3XP12-18	2	9.25	18.50
1560	SHAFT,FLEXIBLE,SS WHITE,TRIAX SEISMOMETER	3XR18-17	1	8.75	8.75
1561	SOCKET,WIRE WRAP,14 PIN	014WP-7611	7	.95	6.65
1562	SOCKET,WIRE WRAP,16 PIN	016WP-7613	3	1.04	3.12
1565	SPACER,MOTOR	31202-01-01	2	.70	1.40
1566	SPACER,SOCKET,BOOM,TRIAX SEISMOMETER	31264-01-01	17	.06	1.02
1567	SPACER,TC-200 MODULE BASKET	31429-01-01	8	.35	2.80
1568	SPACER,LAMINATED BRASS	B2-2	12	.03	.36
1569	SPACER,LAMINATED BRASS	B2-3	11	.04	.44
1570	SPONGE,SOLDERING,UNGAR	455	1	.56	.56
1572	SPRING,LEE	LCC016A-4	12	.08	.96
1573	STRAP,BATTERY,NICAD BATTERY CELL		6	.12	.72
1574	STRAP,BATTERY,NICAD BATTERY CELL		1	.16	.16
1575	STRAP,BATTERY,SONTONE CELLS	16109-109	3	.20	.60
1576	STUD,BRASS,HOFFMAN BOX		6	.09	.54
1577	STYLUS,HELICORDER	3197A	6	5.00	30.00
1578	SUPPORT,FILM DRIVE SHAFT,DEVELOCORDER	90-03718-01-01	1	5.00	5.00
1579	SWITCH,LAMP,PUSH BUTTON	01-745510	6	3.10	18.60
1580	SWITCH,MERCURY,TRIAX SEISMOMETER	AS424A0	2	3.75	7.50
1581	SWITCH,MICRO	E22	8	3.95	31.60
1582	SWITCH,MICRO,W/GASKETS	MS24547-1	8	1.25	10.00
1583	SWITCH,MICRO,DEVELOCORDER DATE/TIMER	15M1	2	1.25	2.50
1584	SWITCH,PROPANE FUEL PRESSURE	D1H-M1A	1	15.00	15.00
1651	TACHOMETER,CAPSTAN,TAPE DECK	310-8625	1	79.00	79.00
1652	TACHOMETER,REEL,TAPE DECK	3125309-01	2	130.00	260.00
1660	TAPE PERFORATOR,FRIGEN,TELETYPE	2003220	25	1.00	25.00
1664	TERMINALS,CRIMP,SIZE 14-22	2RA-18	179	.09	16.11
1665	TERMINAL,FILTER-AMPLIFIER PC BOARDS	2005-8-1	89	.04	3.56
1666	TERMINAL,CRIMP	T9.5	54	.03	1.62
1667	TERMINAL,SOLDERLESS NON-INSULATED	AYH-12-14-H	51	.03	1.53
1668	TERMINAL,STAND-OFF,TEFLON INSULATED	1425-9-11	50	.35	17.50
1669	TERMINAL,STAND-OFF,BAKELITE INSULATED	1426A	9	.30	2.70
1670	TERMINAL,STAND-OFF BAKELITE INSULATED	4735	21	.30	6.30
1671	TERMINAL,FLANGED SPADE INSULATED,BLUE	54206	7	.05	.35
1673	TERMINAL,FLANGED SPADE INSULATED,RED	54206	15	.05	.75
1674	THERMISTOR	44311A	1	12.02	12.02
1676	TIP,PROPANE TORCH,SOLDERING,TURNER	LP-505-2	1	1.95	1.95

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1677	TIP,SOLDERING IRON,UNGAR	PL 111	1	1.50	1.50
1678	TIP,SOLDERING IRON,UNGAR	PL 113	1	1.50	1.50
1679	TIP,SOLDERING IRON,UNGAR	PL114	1	1.00	1.00
1681	TRANSFORMER,FFT	531238-02	3	6.00	18.00
1682	TRANSFORMER,PRI-ESEC=10K 100-100KHZ,50MV	SP66	2	10.18	20.36
1683	TRANSFORMER,PRI-ESEC=600 100-100KHZ,60MV	SP70	2	10.18	20.36
1685	TRANSISTOR	2N174	1	3.60	3.60
1686	TRANSISTOR,	2N388A	2	.88	1.76
1687	TRANSISTOR	2N404	2	.42	.84
1688	TRANSISTOR	2N457A	2	2.18	4.36
1689	TRANSISTOR	2N489A	7	9.18	64.26
1690	TRANSISTOR	2N697	2	.62	1.24
1691	TRANSISTOR	2N718A	21	.75	15.75
1692	TRANSISTOR	2N914	2	.61	1.22
1693	TRANSISTOR	2N1038	1	2.16	2.16
1694	TRANSISTOR	2N1039	2	2.88	5.76
1695	TRANSISTOR	2N1132	1	2.89	2.89
1696	TRANSISTOR	2N1304	3	.60	1.80
1697	TRANSISTOR	2N1305	4	.58	2.32
1698	TRANSISTOR	2N1671B	2	4.26	8.52
1699	TRANSISTOR	2N2102	9	1.36	12.24
1700	TRANSISTOR	2N2369	2	1.50	3.00
1701	TRANSISTOR	2N2552	2	2.26	4.52
1701	TRANSISTOR	2N2552	2	2.26	4.52
1702	TRANSISTOR	2N2904	1	2.34	2.34
1703	TRANSISTOR	2N3055	4	1.42	5.68
1704	TRANSISTOR	2N3251	2	4.26	8.52
1705	TRANSISTOR	2N3391A	6	.43	2.58
1706	TRANSISTOR	2N3612	2	1.30	2.60
1707	TRANSISTOR	2N3638	11	.32	3.52
1708	TRANSISTOR	2N3638A	4	.36	1.44
1709	TRANSISTOR	2N3639	11	.44	4.84
1710	TRANSISTOR	2N3645	2	.28	.56
1711	TRANSISTOR	2N3646	3	.36	1.08
1712	TRANSISTOR	2N3677	4	3.33	13.32
1713	TRANSISTOR	2N3704	3	.41	1.23
1714	TRANSISTOR	2N3707	2	.28	.56
1715	TRANSISTOR	2N3708	6	.33	1.98
1716	TRANSISTOR	2N3710	4	.36	1.44
1717	TRANSISTOR,MATCHED PAIR	2N3711	1	.39	.39
1718	TRANSISTOR	2N3725	1	1.18	1.18
1719	TRANSISTOR	2N3789	1	4.56	4.56
1720	TRANSISTOR	2N3855	1	.40	.40
1721	TRANSISTOR	2N3904	4	.94	3.76
1722	TRANSISTOR	2N3906	5	.66	3.30
1723	TRANSISTOR	2N3958	2	1.95	3.90
1724	TRANSISTOR	RCA 40319	2	.71	1.42
1725	TRANSISTOR	2N4036	1	1.59	1.59
1726	TRANSISTOR	2N4037	6	1.39	8.34
1727	TRANSISTOR	2N4045	2	3.05	6.10

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT CST
1728	TRANSISTOR	2N4058	4	.35	1.40
1729	TRANSISTOR	2N4123	8	.63	5.04
1730	TRANSISTOR	2N4314	2	.81	1.62
1731	TRANSISTOR	2N4870	2	.90	1.80
1732	TRANSISTOR	2N4965	1	.50	.50
1733	TRANSISTOR	2N4967	2	.66	1.32
1734	TRANSISTOR	2N5060	5	.83	4.15
1735	TRANSISTOR	2N5066	4	1.88	7.52
1736	TRANSISTOR	2N5190	3	1.89	5.67
1737	TRANSISTOR	2N5322	5	2.55	12.75
1738	TRANSISTOR	3201100-10	8	2.50	20.00
1739	TRANSISTOR	3201104-10	6	2.40	14.40
1740	TRANSISTOR	3201117-10	5	2.60	13.00
1741	TRANSISTOR	3201123-10	2	5.50	11.00
1742	TRANSISTOR	3212010-10	2	5.50	11.00
1743	TRANSISTOR	3212030-10	2	7.50	15.00
1744	TRANSISTOR	3212053-10	2	1.10	2.20
1745	TRANSISTOR	3212054-10	4	2.20	8.80
1746	TRANSISTOR	3212080-10	2	3.47	6.94
1747	TRANSISTOR	3212081-10	7	1.90	13.30
1748	TRANSISTOR	3212091-10	12	1.80	21.60
1484	TRANSISTOR	014-505	7	2.25	15.75
1749	TRANSISTOR	3212092-10	9	2.80	25.20
1750	TRANSISTOR	3212093-10	2	2.80	5.60
1751	TRANSISTOR	3212098-10	7	1.30	9.10
1752	TRANSISTOR,UNIJUNCTION	3N163	5	2.62	13.10
1753	TRANSISTOR-SILICON FET (CHOPPER)	TIS75	5	1.40	7.00
1754	TRANSISTOR	TRS 501	1	2.25	2.25
1755	TRANSMITTER,FM RADIO,TELEDYNE TELEMETRY	2002680	1	2500.00	2500.00
1758	TUBE,ELECTRON	0A2	3	2.40	7.20
1759	TUBE,ELECTRON	0B2	3	2.65	7.95
1760	TUBE,ELECTRON	5651A	2	3.23	6.46
1761	TUBE,ELECTRON	5751	6	4.85	29.10
1762	TUBE,ELECTRON	5AR4	2	3.73	7.46
1763	TUBE,ELECTRON	6DT5	5	1.69	8.45
1764	TUBE,ELECTRON	6ANB	9	4.40	39.60
1765	TUBE,ELECTRON	6AQ5A	15	2.98	44.70
1766	TUBE,ELECTRON	6AU6A	17	2.63	44.71
1767	TUBE,ELECTRON	6BL8	8	1.62	12.96
1768	TUBE,ELECTRON	6BW4	3	2.40	7.20
1769	TUBE,ELECTRON	6DJ8	1	1.89	1.89
1770	TUBE,ELECTRON	6X4	5	3.03	15.15
1771	TUBE,ELECTRON	12AT7	6	3.00	18.00
1772	TUBE,ELECTRON	12AU7A	6	2.65	15.90
1773	TUBE,ELECTRON	12AX7	4	2.45	9.80
1774	TUBE,ELECTRON	12B4	11	2.03	22.33
1778	TUBE,ELECTRON	5651	4	2.19	8.76
1779	TUBE,CATHODE RAY,	TEK 154-0248	1	190.00	190.00
1780	THERMOCOUPLE,MODEL 515		4	6.00	24.00
1781	TRANSISTOR	2N2712	5	.32	1.60

NO	NOMENCLATURE - MANUFACTURER	PART/MODEL	QTY	COST	TOT COST
1901	V-BELT,FHP,BLOWER MOTOR	4L210	6	2.00	12.00
1902	VALVE BODY - FLOAT ASSY., DEVELOCORDER	LAV 35-5289-02	1	6.95	6.95
1951	WASHER,NYLON	1/64" ID	65	.02	1.30

TOTAL 21679.02

EQUIPMENT TO BE TRANSFERRED TO THE FB4300

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER
42732	CONTROLLER TAPE	GEOTECH	32580	002
41745	CONTROLLER TAPE	GEOTECH	TC215	001
42544	MEMORY CORE 4K	RAYTHEON	70312	67389
40499	PROCESSOR CENTRAL	GEOTECH	TC-27-03	226
40500	PROCESSOR CENTRAL	GEOTECH	TC-27-03	225
42736	SUPPLY POWER	LAMBDA	LM261	NA
42776	SUPPLY POWER	LAMBDA	LMCCS	A72384
40228	SUPPLY POWER MODULAR	LAMBDA ELEC.	L-M-D-5	C79718
40226	SUPPLY POWER MODULAR	LAMBDA ELEC.	LM-C-0-32	NA
40229	SUPPLY POWER MODULAR	LAMBDA	LM-E-5	A71263
42738	SYSTEM DIGITAL CENTRL	GEOTECH	33410	1
42739	SYSTEM DIGITAL CENTRL	GEOTECH	33420	1
42740	SYSTEM DIGITAL CENTRL	GEOTECH	33430	1
40449	SYSTEM TAPE MEMORY	AMPEX	TM7291A	931
40450	SYSTEM TAPE MEMORY	AMPEX	TM7291A	932
42730	SYSTEM TAPE MEMORY	AMPEX	TM-7291	660
41263	TELETYPE	TELETYPE	ASR35	311101

EQUIPMENT TO BE TRANSFERRED TO THE FB4300

SEQ NO.	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER
42721	AMPLIFIER HELICORDER	GEOTECH	26890--0-101	430
42724	AMPLIFIER HELICORDER	GEOTECH	26890-00-101	432
42725	AMPLIFIER HELICORDER	GEOTECH	26890--0-101	433
42955	CONSOLE DEVELOCORDER	GEOTECH	6484	NONE
41448	DEVELOCORDER W/OSC.	GEOTECH	4000A	151
18210	HELICORDER	GEOTECH	2484--3	164
41289	RECEIVER RADIO	SPECIFIC PROD	WVTR-A	1393
41854	SEIS MODULE	GEOTECH	26310	031
41856	SEIS MODULE	GEOTECH	26310	018
41860	SEIS MODULE	GEOTECH	26310	043
41861	SEIS MODULE	GEOTECH	26310	044
41750	SEIS MODULE	GEOTECH	26310	011
41753	SEIS MODULE	GEOTECH	26310	017
41754	SEIS MODULE	GEOTECH	26310	020
41756	SEIS MODULE	GEOTECH	26310	023
41758	SEIS MODULE	GEOTECH	26310	025
41759	SEIS MODULE	GEOTECH	26310	026
41769	SEIS MODULE	GEOTECH	26310	015
41778	SEIS MODULE	GEOTECH	26310	033
41781	SEIS MODULE	GEOTECH	26310	040
41783	SEIS MODULE	GEOTECH	26310	042
41786	SEIS MODULE	GEOTECH	26310	057
41849	SEIS MODULE	GEOTECH	26310	050
41296	SEISMOMETER	GEOTECH	26310	X4
41795	STABALIZER ASSY	GEOTECH	31350--0-1	010
41847	HOIST ELECTRIC	YALE	MIDGET KING	CL450RAGN

EQUIPMENT TO BE TRANSFERRED TO THE MONTANA LASA

SEQ NO	NOMENCLATURE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER
42957	DEGAUSSER TAPE	AMPEX	111	NONE
41453	DEVELOCORDER W/OSC.	GEOTECH	4000A	27
41528	METER, VOM STANDARD	WESTON	80	NONE
42784	OSCILLOSCOPE	TEKTRONIX	7603	809215
42788	TELETYPEWRITER	TELETYPE	ASR35	132848

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE EASTERN TEST RANGE (AFSC)
PATRICK AIR FORCE BASE, FLORIDA 32925

REPLY TO ATTN OF: PMRB

14 October 1976

SUBJECT: Transfer of Equipment Under Project VT/6707, Alaskan Long Period Array (ALPA), Contract No. F08606-76-C-0006

TO: DCASPA Dallas
ATTN: DCPT-DDCO-22/Ms. Mills
500 South Ervay Street
Dallas, TX 75201

1. Attached is a copy of AFTAC/VSC letter dated 12 October 1976 regarding the transfer of equipment from the subject contract.

2. It is requested that your office take the necessary action to effect this transfer as soon as possible.

WILLIAM T. YEARTY, Contracting Officer
P&D Contracts Division
Directorate of Procurement

1 Atch
AFTAC/VSC Ltr, 12 Oct 76

AMERICAN REVOLUTION BICENTENNIAL 1776-1976

DEPARTMENT OF THE AIR FORCE

HEADQUARTERS 1035TH TECHNICAL OPERATIONS GROUP (AFSC)

PATRICK AIR FORCE BASE, FLORIDA 32925

12 OCT 1978

REPLY TO ATTN OF: VELA Seismological Center, 312 Montgomery Street, Alexandria, VA 22314

SUBJECT: Transfer of Equipment Under Project VT/6707, Alaskan Long Period Array (ALPA) Contract No. F08606-76-C-0006

TO: AFETR/PMRB/Mr. Pearson

1. Request that the equipment items contained in the attachment be transferred to the denoted organizations/accounts. The physical transfer of equipment to FB4300 will be handled through the Eielson AFB transportation movement office by Det 460 personnel.

2. The Teledyne Geotech point of contact in the Fairbanks AK area for the transfer of this equipment is Mr. Bill Lee. He can be contacted through Capt Tony Perez, Det 460, APO Seattle WA 98737 (telephone 317-377-2180). The point of contact at McClellan AFB CA for the transfer of this equipment is SMSgt Ritchie, 1155 Tech Ops Sq/LGSE, (telephone AV 633-3448).

3. Should you have any questions concerning the transfer of this equipment, please contact Capt Robert J. Woodward, VELA Seismological Center, 312 Montgomery Street, Alexandria VA 22314 (telephone AV 221-7577).

FOR THE COMMANDER

ROBERT J. WOODWARD, Capt, USAF
Scientific Program Manager
VELA Seismological Center

1 Atch
Equipment List

Cy to:
FB4300 w/Atch
Teledyne Geotech/Mr. Gudzin w/Atch
Teledyne Geotech/Mr. Lee w/Atch
Det 460, w/Atch

GEOTECH SEQUENCE NUMBER	NOMENCLATURE	MANUFACTURER	QUANTITY	TRANSFER TO
7054	Rack Equip	Geotech	5	FB4300
33906	System Timing	Geotech	1	FB4300
41476	Timing	Geotech	1	FB4300
41180	Building, Portable	Parkersburg	1	Det 460/Acct No. 605BD
41687	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 459FL
41688	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 406FA
41689	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 406FA
41690	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 459EM
41691	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 458MS
41693	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 458AR
41697	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 426MT
41698	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 426MT
41699	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 426MT
41700	Building, Portable	ARMCO	1	5010 CAMS/Acct No. 444AA